

User's Manual

ADSL2+ Wireless VoIP Router

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FCC Part 68

This equipment complies with Part 68 of the FCC Rules. On the bottom of this equipment is a label that contains the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. You must provide this information to the telephone company upon request.

The REN is useful to determine the quantity of devices you may connect to the telephone line and still have those entire devices ring when your number is called. In most, but not all areas, the sum of the REN of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If the modem causes harm to the telephone network, the telephone company may discontinue your service temporarily.

If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible.

You will be advised of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this modem, please contact your dealer for repair/warranty information. The telephone company may ask you to disconnect this equipment from the network until the problem has been corrected or you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

FCC Part 15

The modem generates and uses radio frequency energy. If it is not installed and used properly in strict accordance with the user's manual, it may cause interference with radio and television reception. The modem has been tested and found to comply with the limits for Class B computing devices in accordance with the specifications in Subpart B, Part 15 of the FCC regulations. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. FCC regulations require that shielded interface cables be used with your modem.

If interference does occur, we suggest the following measures be taken to rectify the problem:

- 1) Move the receiving antenna.
- 2) Move the modem away from the radio or TV.
- 3) Plug the modem into a different electrical outlet.
- 4) Discuss the problem with a qualified radio / TV technician.

CAUTION:

Changes or modifications not expressly approved by the party responsible for compliance to the FCC Rules could void the user's authority to operate this equipment.

Cable connections:

All equipment connected to this modem must use shielded cable as the interconnection means.

Notes:

Operation is subject to the following two conditions:

- 1) This device may not cause harmful interference, and
- 2) This device must accept any interference received including interference that may cause undesired operation.

Chapter 1 Introduction

The ADSL2+ VoIP Router provides home connectivity to an ADSL service provider network over an ADSL/Asynchronous Transfer Mode (ATM) physical layer. The router can run upstream maximum transmission rates of 2Mbps and downstream maximum transmission rates of 24Mbps. The actual rate depends on the copper category of your telephone wire, distance from the central office and the type of ADSL2+ service subscribed. Four ports switch is provided for connection to an Ethernet LAN or Ethernet-equipped PC, and this router is easy to install and to configure. Connect your phones or fax machines to the phone ports, with separate Internet phone services and phone numbers, so you can have up to two Internet phone lines delivered through the Internet connection.

1.1 Overview

The Infineon Amazon Single-Chip ADSL2+ VoIP Router is optimized to address the growing demand for high-speed Internet access, and it does so as a single, highly-integrated and cost-effective solution. Integrated with VoIP function, user can easy to make a free phone call via VoIP.

Note: We offer free SIP account number for our VoIP device at the beginning, but we only guarantee 1 year to let user to use the free SIP account number. User can find lots free SIP server from the internet or service provider, so please choose the best way to register the SIP server. We only provide the free SIP account for the default testing and you can use it only 1 year. You can go to the hyper link to find the other SIP server to register a new SIP account.

<http://www.sipbroker.com/sipbroker/action/providerWhitePages>

1.2 Features

- ADSL2/2+ Compliance
 - Compliant with ADSL standards
 - Full-rate ANSI.413 Issue 2 , ITU G.dmt (G.992.1) , G.dmt bis (G.992.3) and G.adslplus(G.992.5)
 - standards Splitter less ITU G.lite (G.992.2) specification Annex A (ADSL over POTS) and Annex B (ADSL over ISDN), compliant to ETSI TS 101 388
 - DMT modulation and demodulation
 - Full-rate adaptive modem
 - Maximum downstream rate of 24 Mbps
 - Maximum upstream rate of 2 Mbps
 - Tone detection for low power mode
 - Supports splitter less ADSL implementation
 - Interoperable with all major DSLAM equipment
- ATM Protocols
 - WAN mode support: PPP over ATM (RFC 2364) and PPP over Ethernet (RFC 2516)
 - LAN mode support: bridged/routed Ethernet over ATM (RFC 2684) and classical IP over ATM (RFC 1577)
 - Up to 15 VCs (virtual circuits)
 - ATM SAR (segmentation and reassembly)
 - ATM AALC (adaption layer type 5)
- Bridge Mode
 - Ethernet to ADSL self learning Transparent Bridging (IEEE 802.1D)
 - Supports up to 128 MAC learning addresses
- Router Mode
 - IP routing-RIPv2
 - Static routing
 - DNS Proxy

- Dynamic DNS
- DMZ
- Port Forwarding
- DHCP (dynamic host configuration protocol) server and client
- NAT (network address translation)
- ICMP (Internet control message protocol)
- VoIP Features
 - Voice codec
 - G.711:64k bit/s (PCM)
 - G.723.1: 6.3k / 5.3k bit/s
 - G.726: 16k / 24k / 32k / 40k bit/s (ADPCM)
 - G.729A : 8k bit/s (CS-ACELP)
 - G.729B : adds AD & CNG to G.729
 - Voice Quality
 - VAD(Voice activity detection),
 - CNG (Comfortable noise generator)
 - LEC (Line echo canceller)
 - Packet Loss Compensation
 - Adaptive Jitter Buffer
 - Call Function
 - Call Hold
 - Call Waiting
 - Call Forward
 - Caller ID
 - 3-Way Conferencing
 - DTMF Function
 - In-Band DTMF
 - Out-Band DTMF
 - SIP Info
 - Phone Function
 - Volume Adjustment
 - Speed dial key
 - Phone book
- Wireless Features
 - Support 802.11b/g Wireless Access Point
 - MD5 for SIP authentication (RFC2069/ RFC 2617)
 - Support 128-Bit and 64-Bit WEP encryption , 802.1x, WPA, WPA2

- Security
 - Stateful packet inspection and filtering
 - Intrusion detection and protection
 - PAP (password authentication protocol)
 - CHAP (challenge authentication protocol)
 - Password protected system management
- Ethernet Interface
 - Compliant with IEEE 802.3 and 802.3u 10/100 Mbps
- HTTP Web-Based Management
 - Firmware upgrade by UI
 - Customizable Web pages
 - WAN and LAN side connection statistics
 - Configuration of static routes and routing table
 - Password protected access
 - Wireless LAN
 - System log
 - Configuration of VCs (virtual circuits)

1.3 System Requirements

- 1) Personal computer (PC)
 - 2) Pentium II 233 MHz processor minimum
 - 3) 32 MB RAM minimum
 - 4) 20 MB of free disk space minimum
 - 5) Ethernet Network Interface Controller (NIC) RJ45 Port
 - 6) Internet Browser
-

Chapter 2 Installation

This chapter offers information about installing your router. If you are not familiar with the hardware or software parameters presented here, please consult your service provider for the values needed.

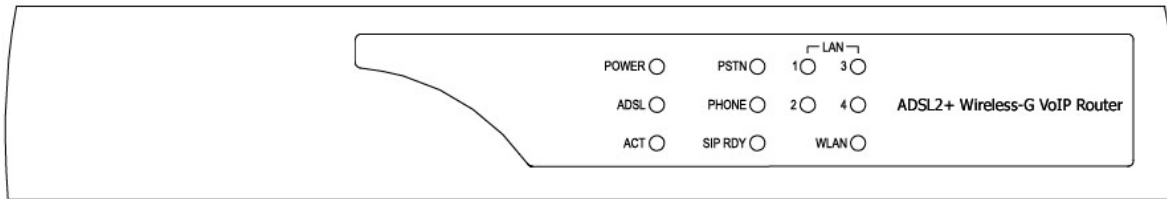
2.1 Checklist

Check the shipping box carefully to ensure that the contents include the items you ordered. If any of the items are missing or damaged, contact your local distributor. The contents of your carton may vary depending on your service provider.

Contents description

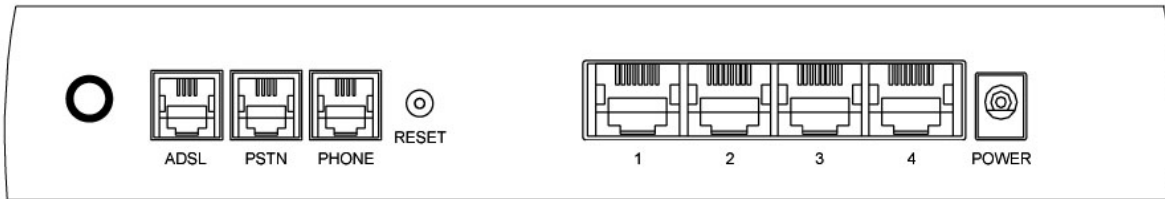
- 1) ADSL2+ VoIP Router for home/office use
- 2) ADSL2+ Router Installation and Operation Guide (this publication)
- 3) Power supply with 9Vdc / 1.5 Ampere power adapter
- 4) ADSL cable RJ-11 telephone cable (6 ft)
- 5) Ethernet cable Ethernet category 5 twisted pair cable (6 ft)

2.2 The Front LEDs



LED	State	Description
POWER	ON	When the router power on.
ADSL	ON	"Showtime"-successful connection between ADSL modem and telephone company's network.
	Flashing	"Handshaking"-modem is trying to establish a connection to telco's network Modem is
	OFF	powered OFF ADSL Carrier Detect if LED is flash.
ACT	Flashing	Data transmit between router and telco.
PSTN	Flashing	When the user using PSTN line
PHONE	Flashing	When the user using the phone
SIP RDY	ON	When the Phone1 SIP number registered
WLAN	ON	When wireless AP is ready.
LAN 1-4	ON	Link
	Flashing	TX or RX activity
	OFF	No Link These four LAN (Local Area Network) ports are where you will connect networked devices, such as PCs, print servers remote hard drives, and anything else you want to put on your network.

2.3 The Rear Ports



Connector	Description
POWER	Power connector with 9VDC/ 1.5 Ampere.
Reset Switch	The reset button, the router restore default settings when press until reboot.
LAN (1-4)	Router is successfully connected to a device through the corresponding port (1, 2, 3 or 4). If the LED is flashing, the Router is actively sending or receiving data over that port.
ADSL Connector	The RJ-11 connector allows data communication between the modem and the ADSL network through a twisted-pair phone wire.
PSTN	For the PSTN line to connect to the device.
PHONE	For analog phone to connect to the device.

2.4 Hardware installation

This section describes how to connect and configure the ADSL2+ Router.

Step 1. Connect the ADSL Line

Connect the router directly to the wall jack using the included ADSL cable.

Step 2. Connect a Workstation to the Router's LAN port

There are two methods to connect the router and workstation. The one use the crossover Ethernet cable to connect directly between them. The other use straight Ethernet cable to connect router with hub (or switch), and then go to the workstation.

Step 3. Connect the Power Adapter to the Router

Connect the power adapter to the port labeled POWER on the rear panel of router.

Step 4. Connect All Cables to the Network

The procedure for connecting cables differs depending on whether or not your telephone equipment is connected to a POTS splitter.

POTS Splitter Configuration (ADSL over POTS)

A POTS splitter separates data signals from voice signals on your telephone line. The POTS splitter works by running a separate data line from the voice line, so that the ADSL router has a dedicated cable for data transmission. Figure 2-4.1 and 2-4.2 shows how to connect all cables to the Router.

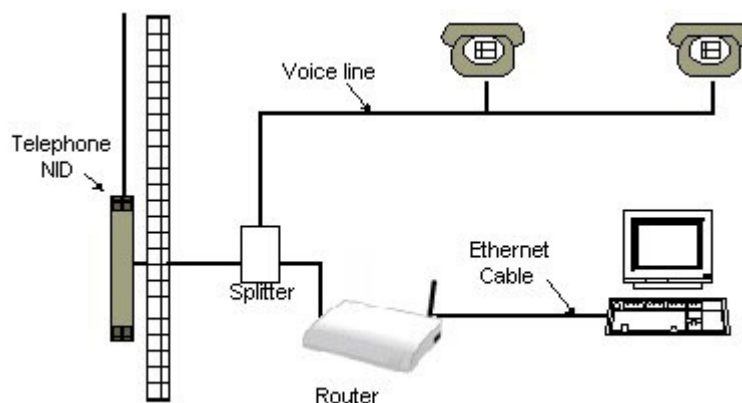


Figure 2-4.1 Router Connected through a POTS Splitter

Note: The POTS splitter may also be installed on the outside of the house adjacent to the telephone network interface device (NID).

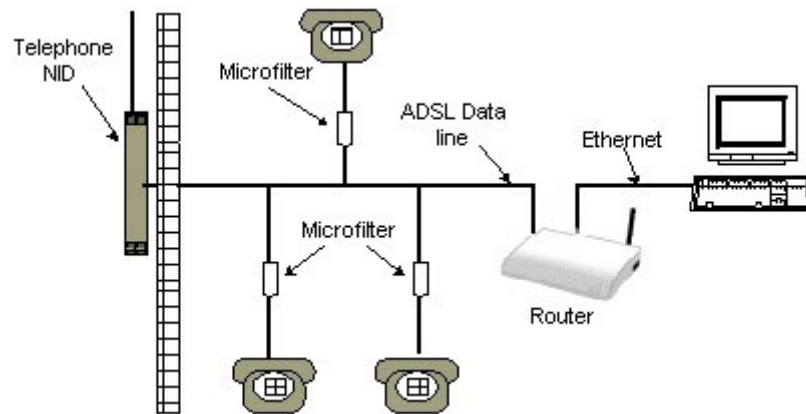


Figure 2-4.2 Router Connected through several micro-filters

ISDN Splitter Configuration (ADSL over ISDN)

A ISDN splitter separates ADSL signals from ISDN signals on your ISDN telephone line. The ISDN splitter works by running a separate ADSL line from the ISDN line, so that the ADSL router has a dedicated cable for data transmission.

Figure 2-4.3 shows how to connect all cables to the Router.

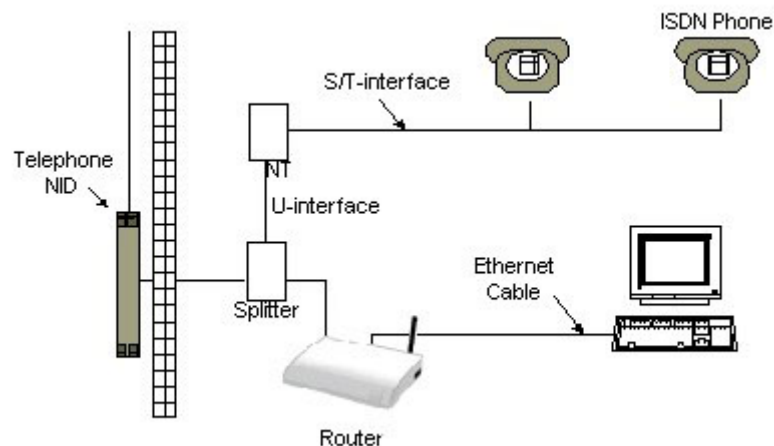


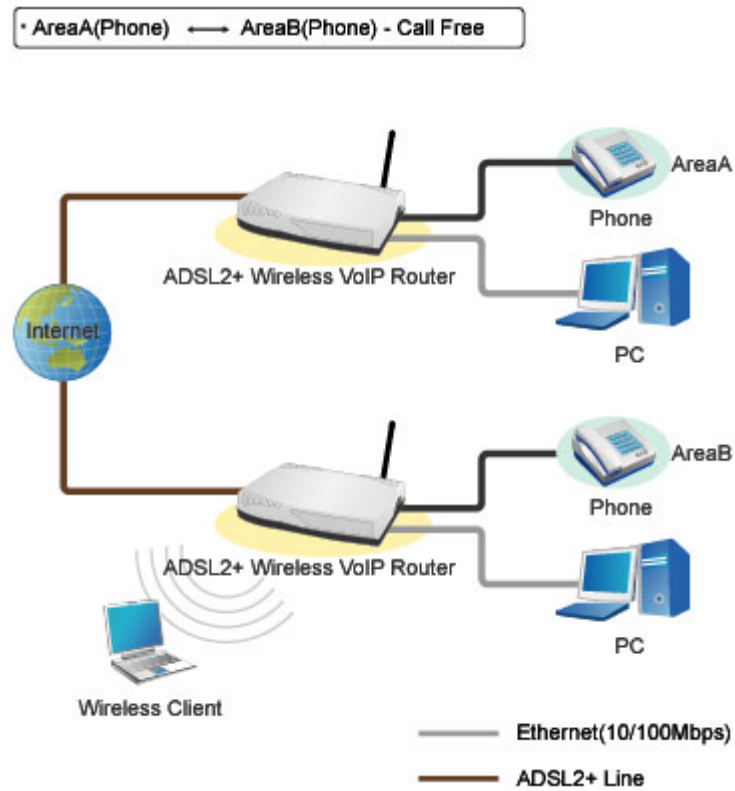
Figure 2-4.3 Router Connected through an ISDN Splitter

Note: The ISDN splitter may also be installed on the outside of the house adjacent to the telephone network interface device (NID).

Step 5. Setting VoIP to the Network

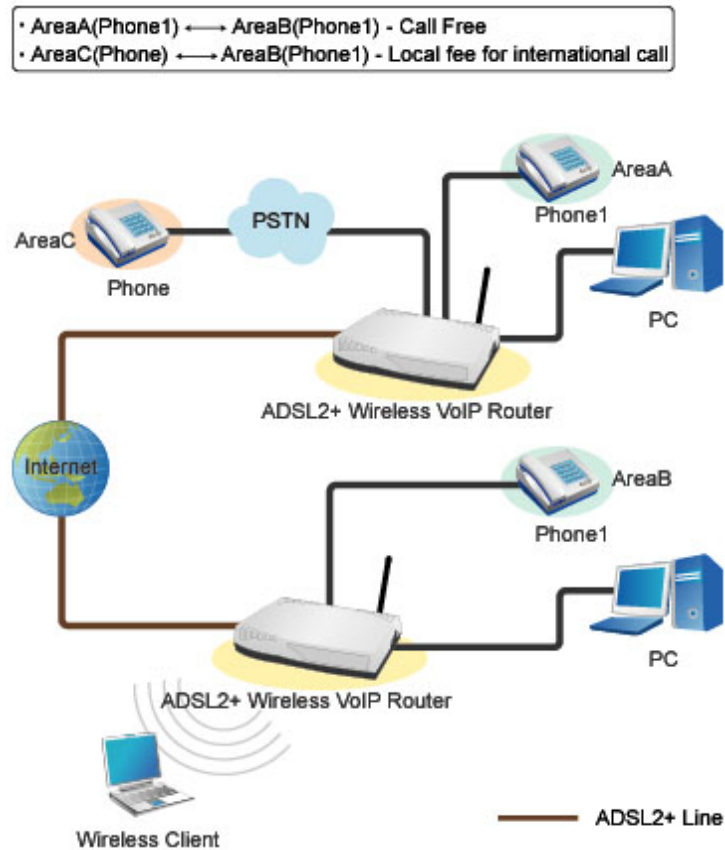
1. Scenario 1 : (FXS to FXS) --- call free.

In this scenario, user can call from Area A to Area B via this device and no more expense for the phone call.



2. Scenario 2: (FXS to FXO) --- Internet call transfer to local PSTN call

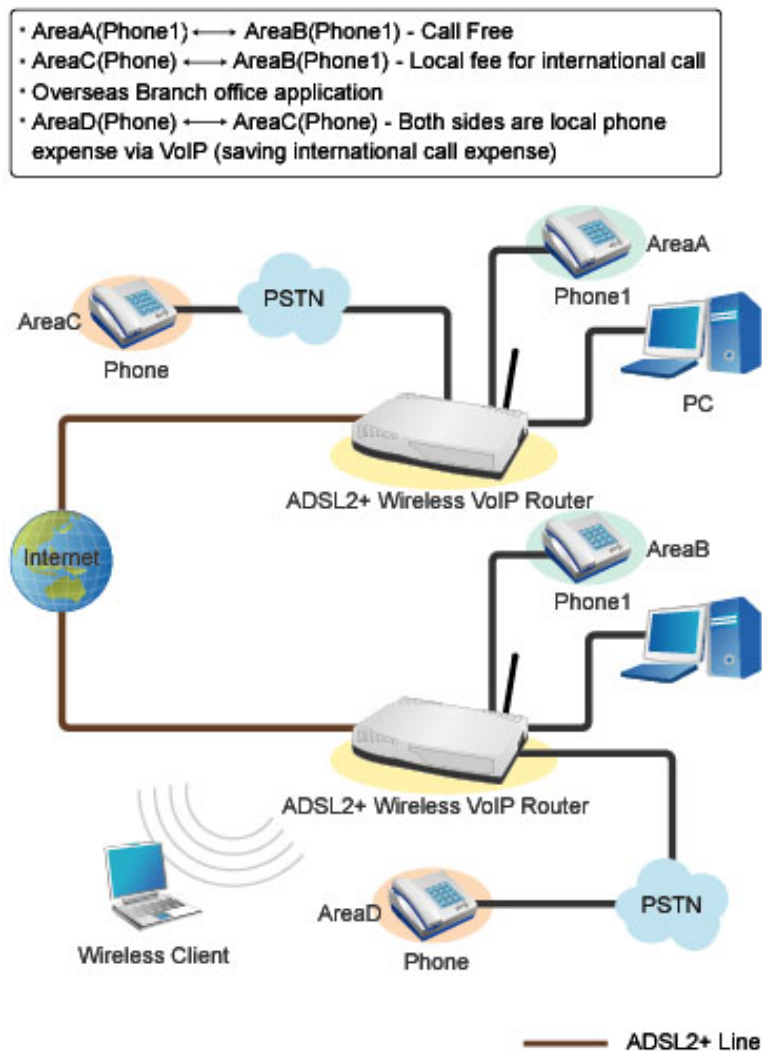
In this scenario, user can call from Area A to Area B via this device and no more expense for the phone call. Or from Area C a local home or office dial to Area A and set the gateway to transfer the phone to Area B, if your office is at overseas; it will save international call expense and just charge the local call from Area C to Area A.



3. Scenario 3: (FXO to FXO) --- PSTN via Internet to another PSTN (save the international expense)

In this scenario, user can call from Area A to Area B via this device and no more expense for the phone call. Or from Area C a local home or office dial to Area A and set the gateway to transfer the phone to Area B, if your office is at overseas; it will save international call expense and just charge the local call from Area C to Area A.

Or call from Area C to Area D, both sides are charged the local call expense only.



Chapter 3 Configuration

3.1 Determine your connection settings

Before you configure the router; you need to know the connection information supplied by your ADSL service provider.

3.2 Connecting the ADSL Router to your network

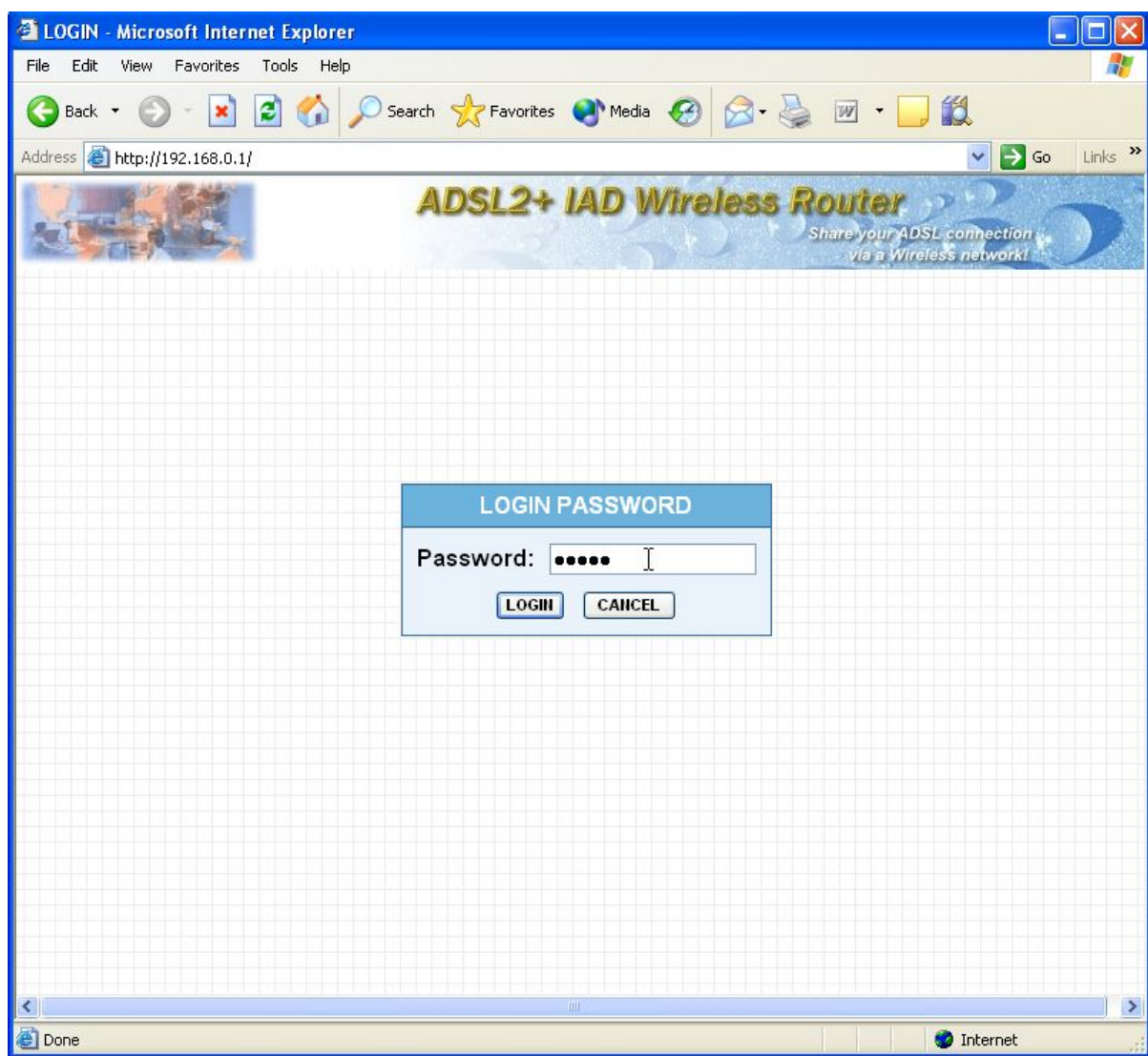
Unlike a simple hub or switch, the setup of the ADSL Router consists of more than simply plugging everything together.

Because the Router acts as a DHCP server, you will have to set some values within the Router, and also configure your networked PCs to accept the IP Addresses the Router chooses to assign them. Generally there are several different operating modes for your applications. And you can know which mode is necessary for your system from ISP. These modes are router, bridge, PPPoE+NAT and NAT and PPPoA+NAT.

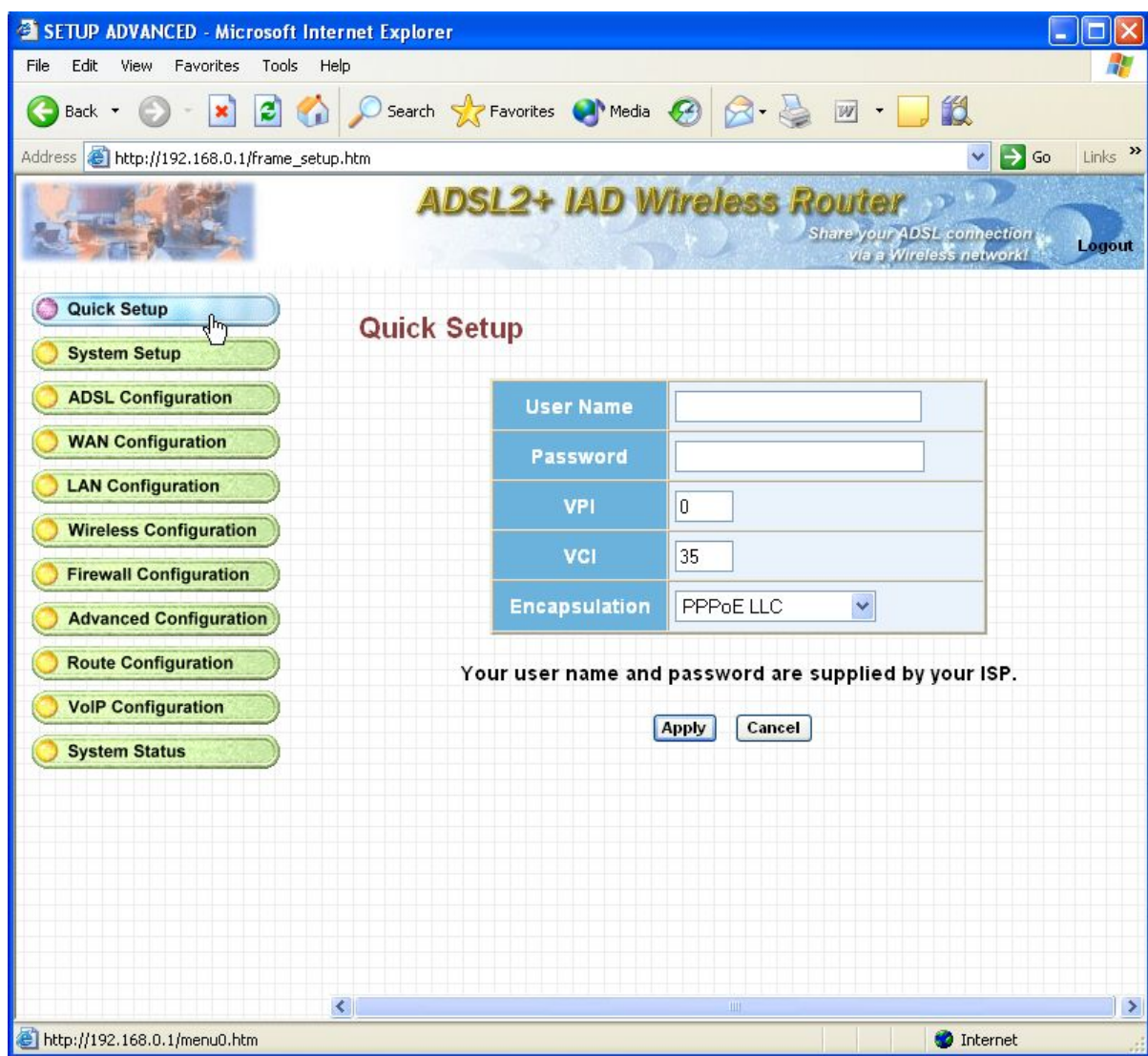
3.3 Configuring with Web Browser

It is advisable to change the administrator password to safeguard the security of your network.

To configure the router, open your browser, type '**http://192.168.0.1**' into the address bar and click 'Go' to get to the login page. Save this address in your Favorites for future reference.



At the Password prompt, type '**admin**'. You can change these later if you wish. Click '**LOGIN**'.



You can use "Quick Setup" to setup the router, and the router will connect to the Internet via ADSL line.

3.3.1 Hostname Setting

SETUP ADVANCED - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://192.168.0.1/frame_setup.htm Go Links

ADSL2+ IAD Wireless Router
Share your ADSL connection via a Wireless network! Logout

Host Name

Enter the host name representing your host and the domain name you want to configuration, then you can doing web configuration by typing the whole name you configuration instead by typing the IP address.

Host Name

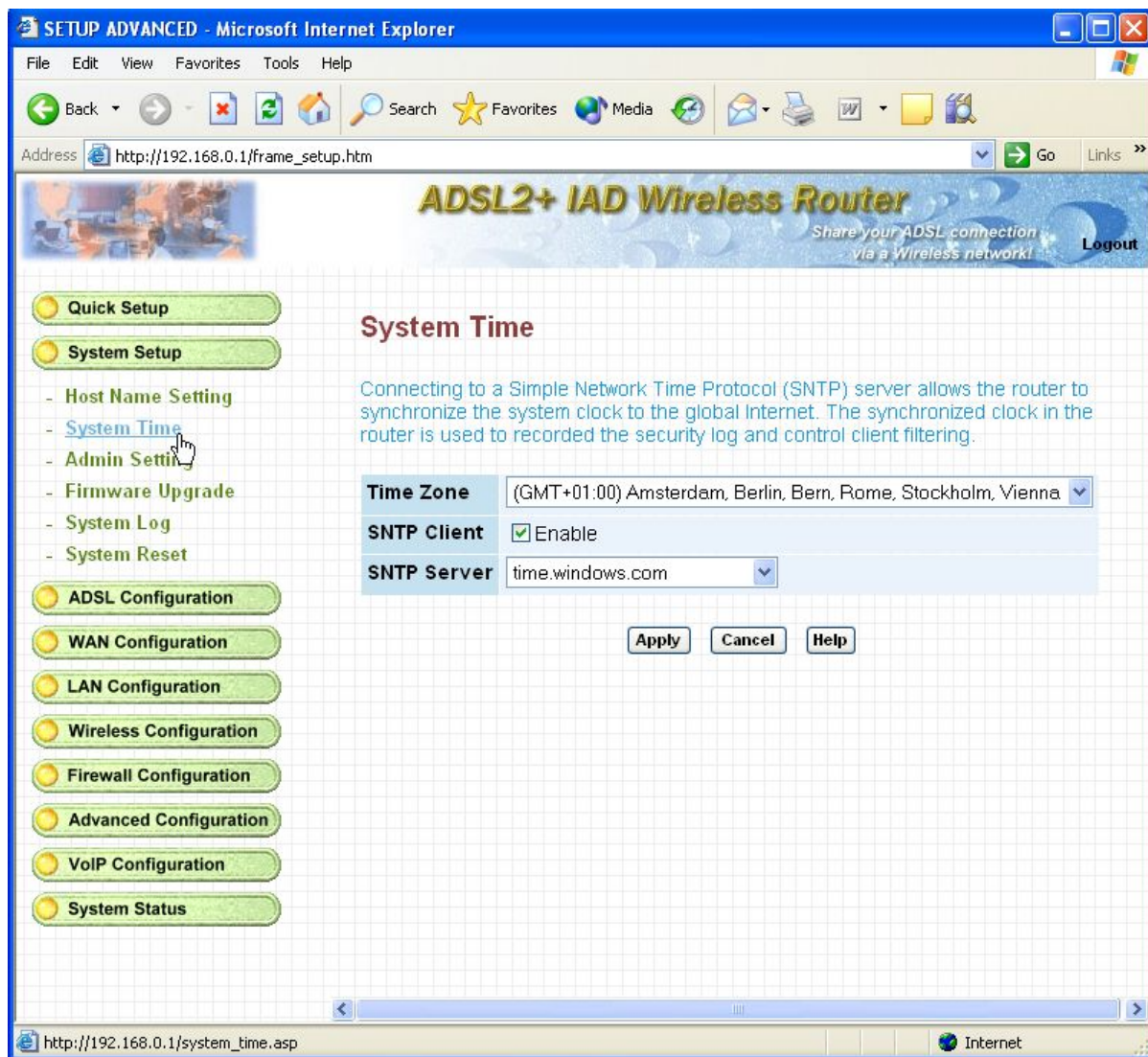
Domain Name

Apply Cancel Help

http://192.168.0.1/system_hostname.asp Internet

Enter the host name representing your host and the domain name you want to configuration, then you can doing web configuration by typing the whole name you configuration instead by typing the IP address.

3.3.2 System Time



Connecting to a Simple Network Time Protocol (SNTP) server allows the router to synchronize the system clock to the global Internet. The synchronized clock in the router is used to record the security log and control client filtering.

3.3.3 Admin Setting

SETUP ADVANCED - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://192.168.0.1/frame_setup.htm Go Links

ADSL2+ IAD Wireless Router
Share your ADSL connection via a Wireless network! Logout

Quick Setup

System Setup

- Host Name Setting
- System Time
- **Admin Setting**
- Firmware Upgrade
- System Log
- System Reset

ADSL Configuration

WAN Configuration

LAN Configuration

Wireless Configuration

Firewall Configuration

Advanced Configuration

VoIP Configuration

System Status

Administrator Settings

Set a password to restrict management access to the router. If you want to manage the router from a remote location (outside of the local network), you must also specify the IP address of the remote PC.

Current Password

Password

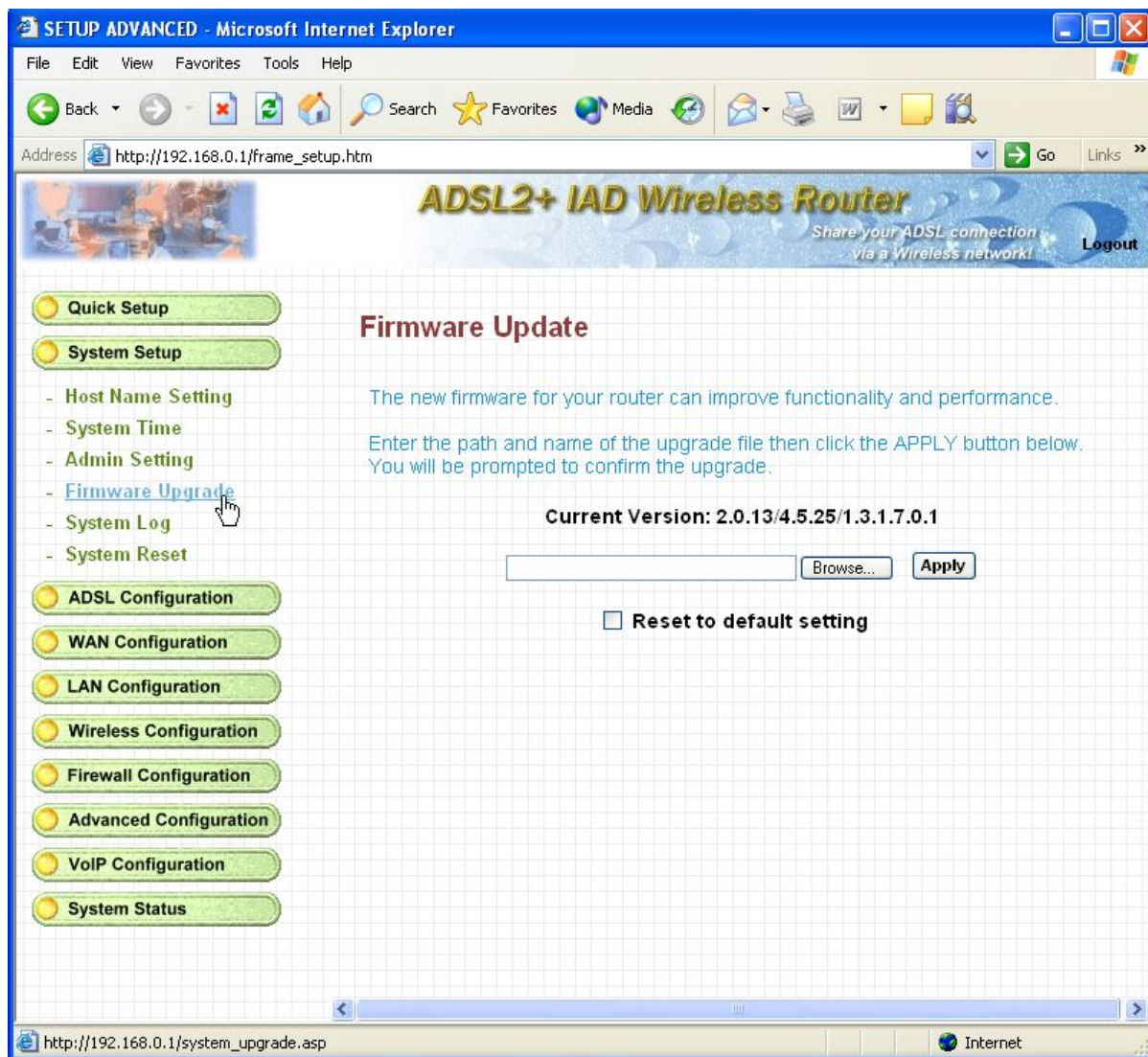
Re-type Password (3-12 Characters)

Apply Cancel Help

http://192.168.0.1/system_password.htm Internet

Set a password to restrict management access to the router. The default is **admin**.

3.3.4 Firmware Update



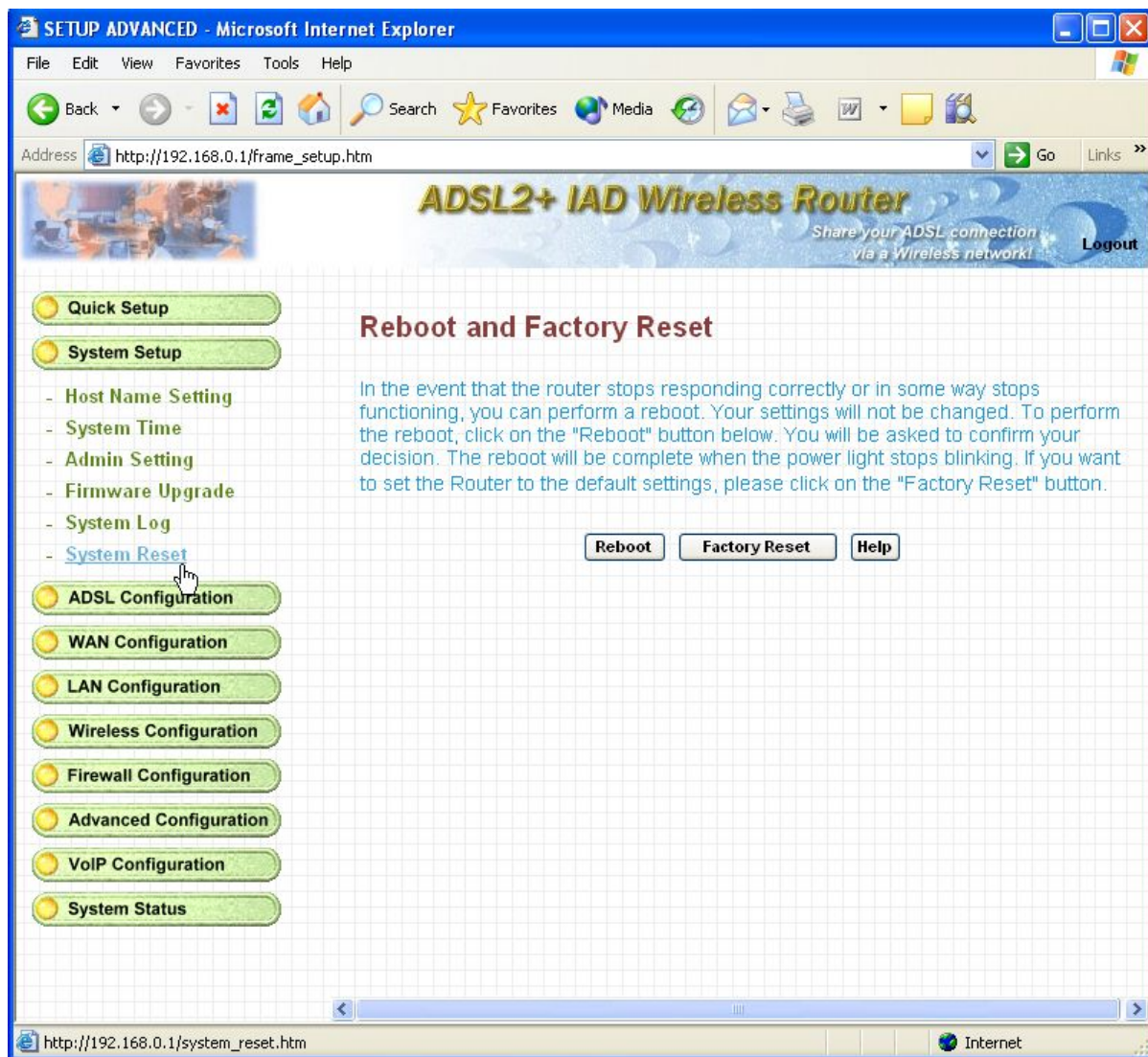
The new firmware for your router can improve functionality and performance.
Enter the path and name of the upgrade file then click the APPLY button below.
You will be prompted to confirm the upgrade.

3.3.5 System Log



Click **Download** to save or open system log file.

3.3.6 System Reset



In the event that the router stops responding correctly or in some way stops functioning, you can perform a reset. Your settings will not be changed. To perform the reset, click on the "**Reset**" button below. You will be asked to confirm your decision.

Click on the "**Factory Reset**" button, the router will restore default settings.

3.4.1 ADSL Status

ADSL2+ IAD Wireless Router

Share your ADSL connection via a Wireless network! Logout

ADSL Line Status

Status

Modem Status	Ready
Mode Selected	Unknown Mode
DMT Framing Mode	G.DMT Framing Mode 0
Trellis-Coded Modulation	Enable
Latency Type	NA

Rate

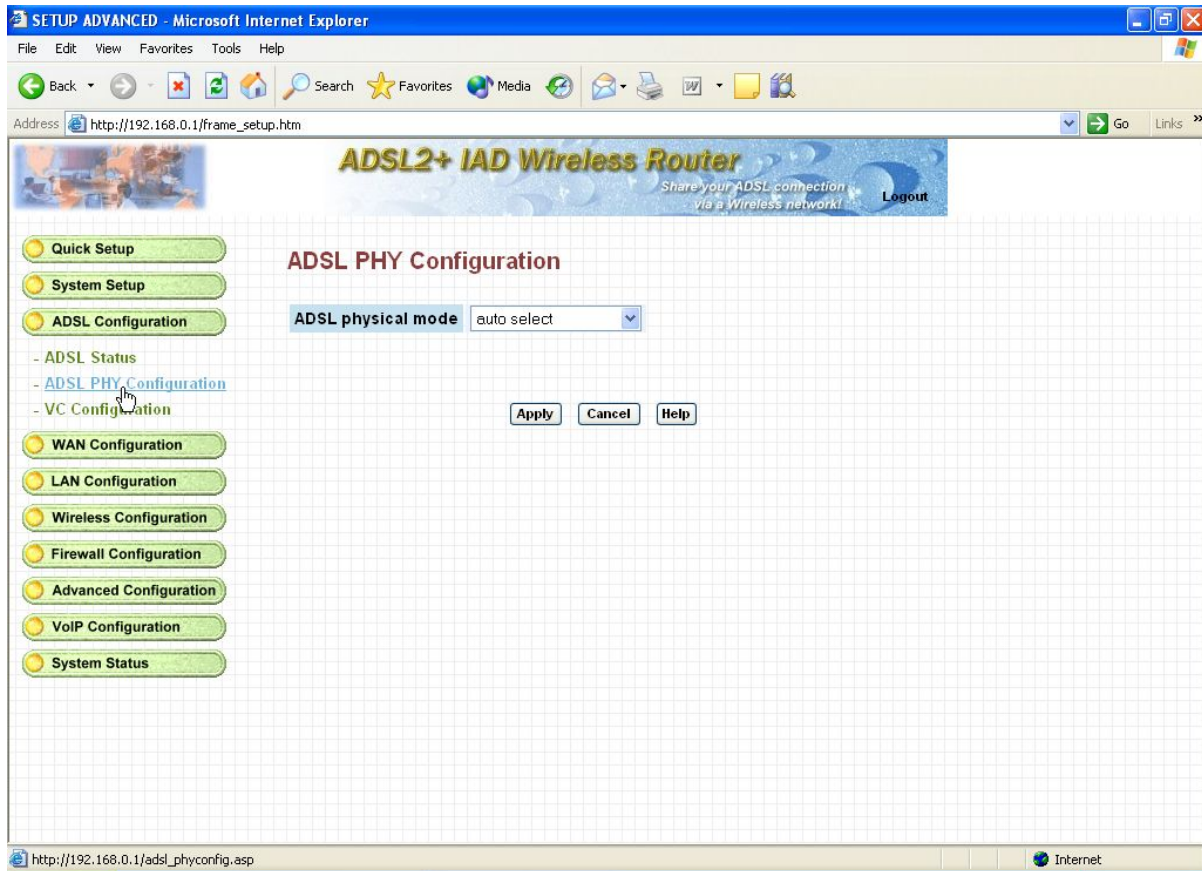
	Downstream	Upstream
Data Rate	0 kbps	0 kbps
Maximum Attainable Data Rate(ATTNDR)	0 kbps	0 kbps

Information

	Downstream	Upstream
Line Attenuation(LATN)	0.0 dB	0.0 dB
Signal Attenuation(SATN)	0.0 dB	0.0 dB
Signal-to-Noise Ratio Margin(SNRM)	0.0 dB	0.0 dB
Actual Aggregate Transmit Power (ACATP)	0.0 dB	0.0 dB

The "ADSL Line Status" enables you to check the status of your ADSL connection including how fast data is being transferred.

3.4.2 ADSL PHY Configuration



The "ADSL PHY Configuration" enables you to change the ADSL (G.992.1), ADSL2 (G.992.3) and ADSL2+ (G.992.5) settings.

3.4.3 VC Configuration

SETUP ADVANCED - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Mail Print Word Pad Help

Address http://192.168.0.1/frame_setup.htm Go Links

ADSL2+ IAD Wireless Router

Share your ADSL connection via a Wireless network! Logout

ADSL VC Configuration

Encapsulation mode	LLC/SNAP
VPI/VCI setting	0/35
QoS mode	UBR
Peak Cell Rate	cells/s
Cell Delay Variation	jitters
Sustainable Cell Rate	cells/s
Maximum Burst Size	cells/s

Add Delete

Total VC Channels:

1 - VCC Setting 0/35 LLC/SNAP - QoS UBR

Apply Cancel Help

http://192.168.0.1/adsl_vcconfig.asp Internet

To add or delete ADSL VC configuration, these information provide by ISP.

Check a VC ID then press “**Apply**”.

3.5.1 WAN Configuration

ADSL2+ IAD Wireless Router
Share your ADSL connection via a Wireless network! Logout

Multiple VCCs Settings

ID		VCC	TYPE
WAN1	☒	0/35,LLC	PPPoE
WAN2	☐		Disabled
WAN3	☐		Disabled
WAN4	☐		Disabled
WAN5	☐		Disabled
WAN6	☐		Disabled
WAN7	☐		Disabled
WAN8	☐		Disabled
WAN9	☐		Disabled
WAN10	☐		Disabled
WAN11	☐		Disabled
WAN12	☐		Disabled
WAN13	☐		Disabled

The router can be connected to your service provider in any of the following ways

Dynamic IP Address: Obtain an IP address automatically from your service provider.

Static IP Address: Uses a static IP address. Your service provider gives a static IP address to access Internet services.

PPPoE: PPP over Ethernet is a common connection method used for xDSL

PPPoA: PPP over ATM is a common connection method used for xDSL

Bridge: Bridge mode is a common connection method used for xDSL modem.



3.5.2 WAN Status

ADSL2+ IAD Wireless Router
Share your ADSL connection via a Wireless network! Logout

VCCs Status

ID	VCC	Connection	Status	IP	Netmask
1	0/35,LLC	PPPoE	CONNECTING	0.0.0.0	0.0.0.0
			Disconnect Connect		
2		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
3		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
4		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
5		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
6		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
7		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
8		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
9		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
10		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
11		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
12		Disabled	DISCONNECT	0.0.0.0	0.0.0.0
13		Disabled	DISCONNECT	0.0.0.0	0.0.0.0

Navigation sidebar:

- Quick Setup
- System Setup
- ADSL Configuration
- WAN Configuration
 - WAN Configuration
 - WAN Status
 - DNS
 - DDNS
- LAN Configuration
- Wireless Configuration
- Firewall Configuration
- Advanced Configuration
- Route Configuration
- VoIP Configuration
- System Status

User can check the WAN connection status on this page. You can disconnect or connect the WAN link here. The maximum VCC connections are 15.

3.5.3 DNS



A Domain Name system (DNS) server is like an index of IP addresses and Web addresses.

If you type a Web address into you browser, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since your Service Provider many connect to the Internet with dynamic IP settings, it is likely that the DNS server IP addresses are also provided dynamically.

However, if there is a DNS server that you would rather use, you need to specify the IP address below.

3.5.4 DDNS



Dynamic DNS allows you to update your dynamic IP address with one or many dynamic DNS services. So anyone can access your FTP or Web service on your computer using DNS-like address.

3.6.1 LAN Configuration

The screenshot shows the 'LAN Settings' page of an 'ADSL2+ IAD Wireless Router' configuration interface, viewed in Microsoft Internet Explorer. The browser's address bar shows 'http://192.168.0.1/frame_setup.htm'. The page has a blue header with the router's name and a 'Logout' link. A left sidebar contains a menu of configuration options: Quick Setup, System Setup, ADSL Configuration, WAN Configuration, LAN Configuration (selected), LAN Configuration (sub-menu), DHCP Client List, STP Bridge, IGMP Setting, Wireless Configuration, Firewall Configuration, Advanced Configuration, Route Configuration, VoIP Configuration, and System Status. The main content area is titled 'LAN Settings' and includes a sub-header 'LAN IP Address Setting' with fields for IP Address (192.168.0.1), Subnet Mask (255.255.255.0), and DHCP Mode (Server). Below this is the 'DHCP Server' section with fields for IP Pool Starting Address (192.168.0.4), IP Pool Ending Address (192.168.0.35), Lease Time (One day), and Local Domain Name. The 'DHCP Relay Setting' section includes a dropdown for 'WAN1' and a field for 'DHCP Server IP'. At the bottom are 'Apply', 'Cancel', and 'Help' buttons. The browser's status bar at the bottom shows 'http://192.168.0.1/lan.asp' and 'Internet'.

ADSL2+ IAD Wireless Router
Share your ADSL connection via a Wireless network! Logout

LAN Settings
You can enable DHCP to dynamically allocate IP addresses to your client PCs.

LAN IP Address Setting

IP Address	192	168	0	1
Subnet Mask	255	255	255	0
DHCP Mode	Server			

DHCP Server

IP Pool Starting Address	192.168.0.	4
IP Pool Ending Address	192.168.0.	35
Lease Time	One day	
Local Domain Name	(optional)	

DHCP Relay Setting

WAN1	DHCP Server IP
------	----------------

Apply Cancel Help

http://192.168.0.1/lan.asp Internet

The "LAN Settings" option enables you to configure the LAN port.

If the DHCP Relay is selected, the DHCP requests from local PCs are forward to the DHCP server runs on WAN side. To have this function working properly, disable the NAT to run on router mode only, disable the DHCP server on the LAN port, and make sure the routing table has the correct routing entry.

3.6.2 DHCP Client List

The screenshot shows the web interface of an ADSL2+ IAD Wireless Router. The browser window is titled "SETUP ADVANCED - Microsoft Internet Explorer". The address bar shows "http://192.168.0.1/frame_setup.htm". The page has a blue header with the router's name and a "Logout" link. A left sidebar contains a menu of configuration options: Quick Setup, System Setup, ADSL Configuration, WAN Configuration, LAN Configuration (expanded), Wireless Configuration, Firewall Configuration, Advanced Configuration, Route Configuration, VoIP Configuration, and System Status. Under "LAN Configuration", "DHCP Client List" is selected. The main content area is titled "DHCP Client List" and includes a description: "The DHCP client list allows you to see which clients are connected to the router via IP address, host name, and MAC address." Below this is a table with three columns: "MAC Address", "IP Address", and "Expires". The table contains one entry: MAC Address 00:08:54:3d:5d:eb, IP Address 192.168.0.4, and Expires 23:55:46. A "Help" button is located below the table. The status bar at the bottom shows the current URL as "http://192.168.0.1/lan_dhcp_clients.asp".

DHCP Client List

The DHCP client list allows you to see which clients are connected to the router via IP address, host name, and MAC address.

MAC Address	IP Address	Expires
00:08:54:3d:5d:eb	192.168.0.4	23:55:46

[Help](#)

The DHCP client list allows you to see which clients are connected to the router via IP address and MAC address.

3.6.3 STB Bridge



Please refer to your ISP for more information on when to configure the router as a bridge.

3.6.4 IGMP Setting



The Internet Group Management Protocol is a communication protocol used to manage the membership of Internet Protocol multicast groups. IGMP is used by IP hosts and adjacent multicast routers to establish multicast group memberships, which is important for high-bandwidth multicast groups and / or subnets with highly volatile group membership.

3.7.1 Wireless Setting



SSID

The identifier for the network. You can change the SSID. Only devices with the same SSID can interconnect.

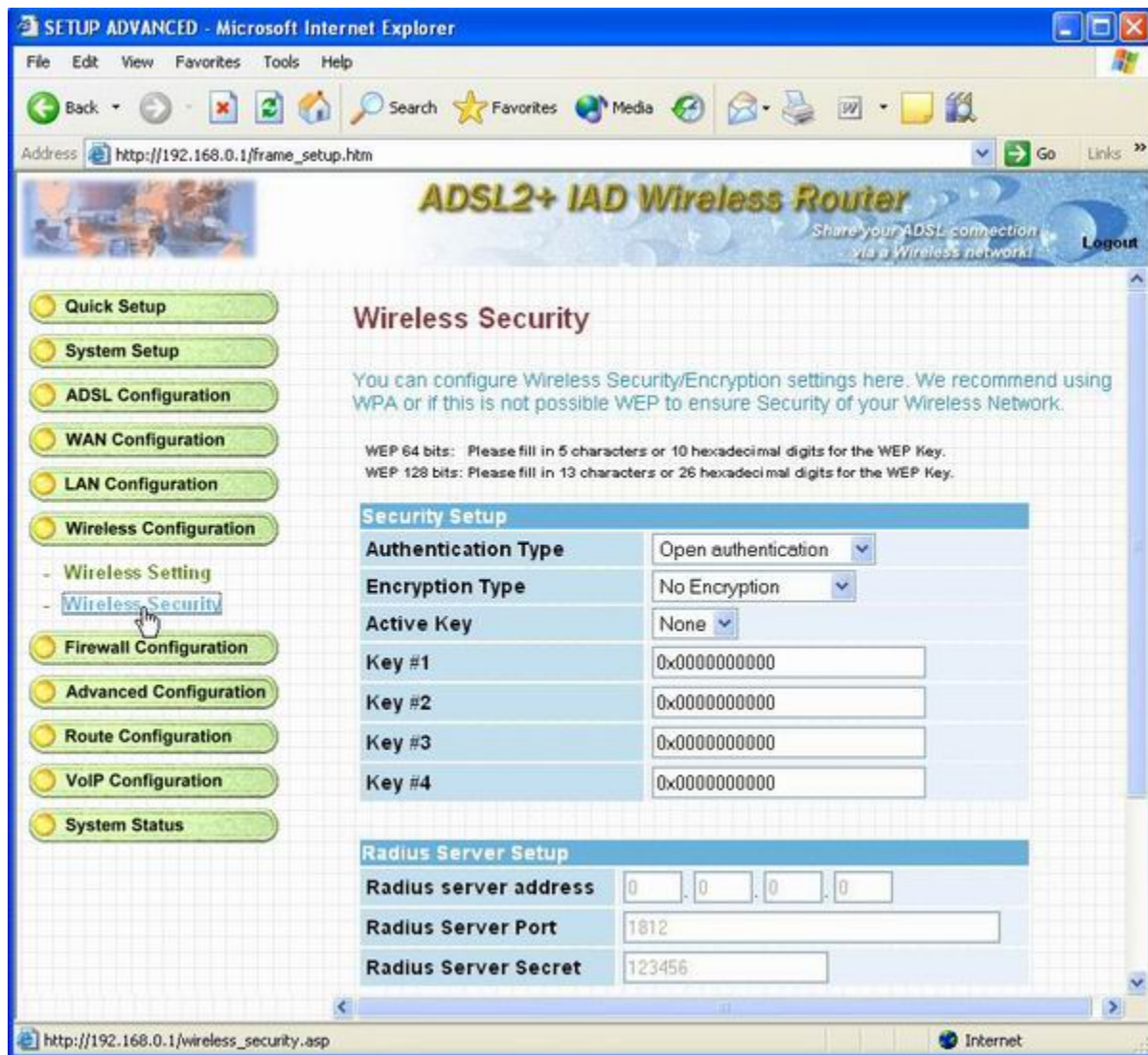
Channel ID

The channel number used for networking. The channel setting of the wireless devices within a network should be the same.

Operation Rate

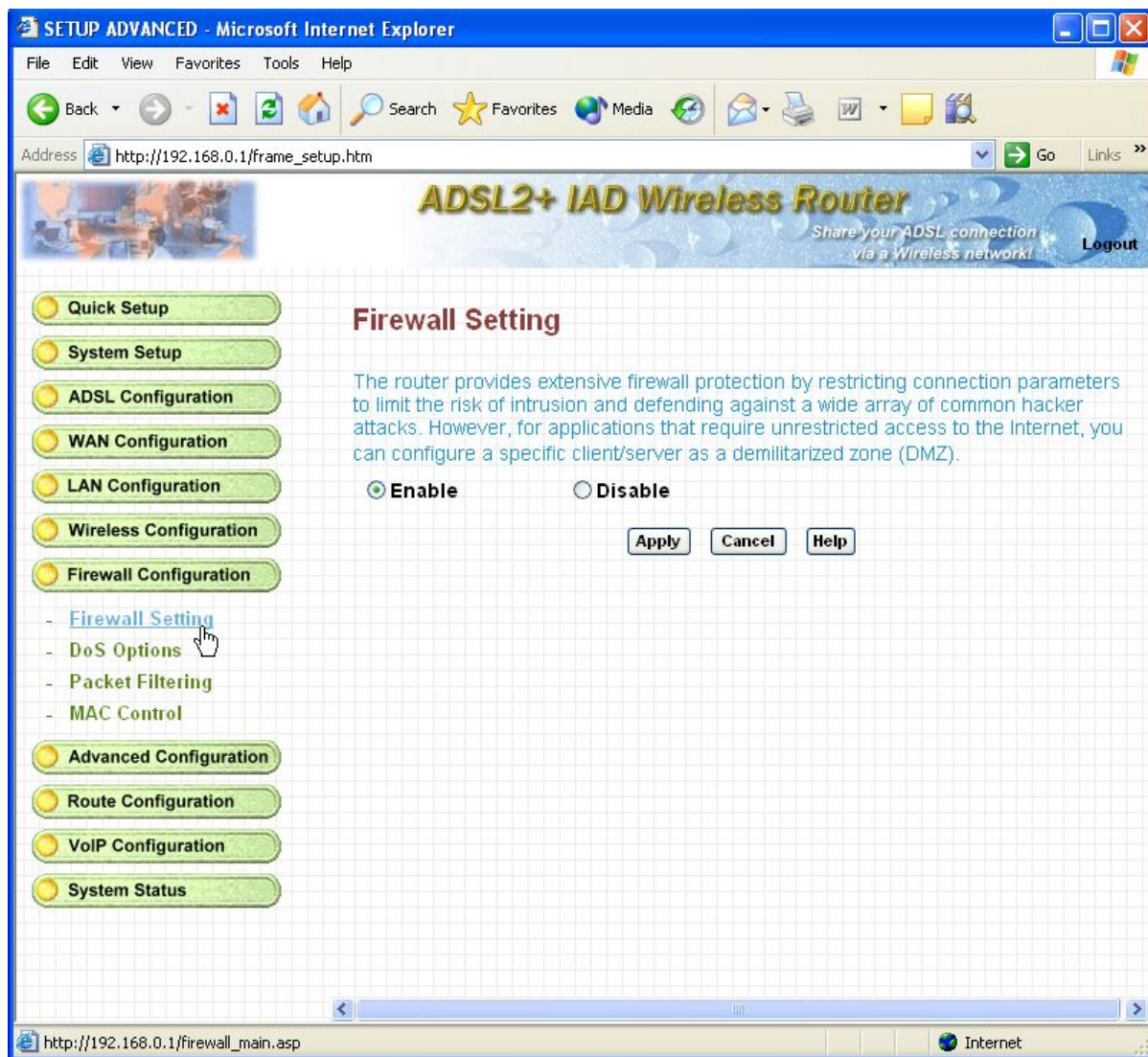
Support 802.11b , 802.11g and 802.11b/g

3.7.2 Wireless Security



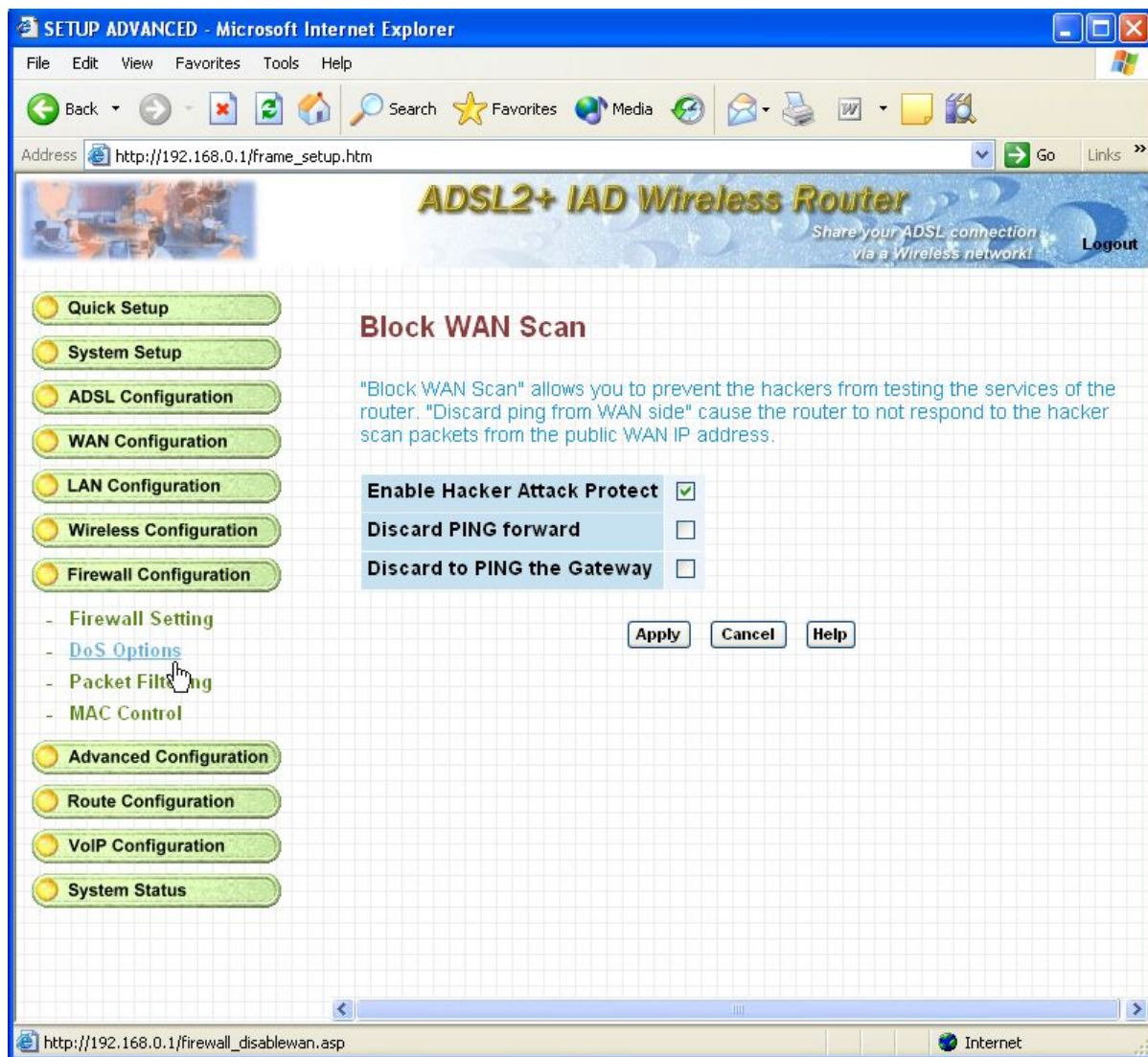
The Authentication type supports “Open system”, “Shared key”, “802.1x”, “WPA/WPA2” and “WPA-PSK/WPA2-PSK”.

3.8.1 Firewall Setting



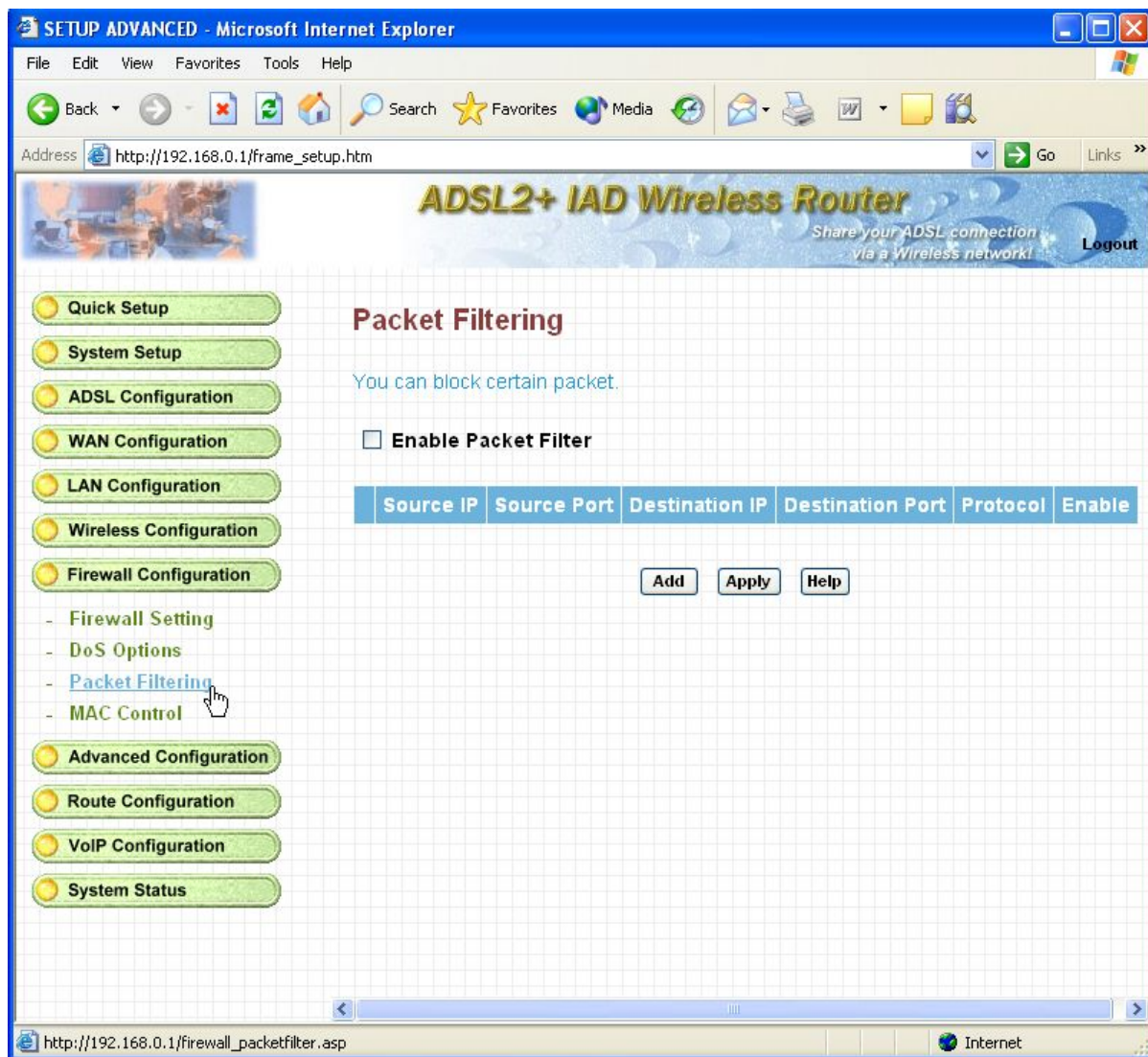
The router provides extensive firewall protection by restricting connection parameters to limit the risk of intrusion and defending against a wide array of common hacker attacks. However, for applications that requires unrestricted access to the Internet.

3.8.2 DoS Options



“**Block WAN Scan**” allow you to prevent the hackers from testing the services of the router. “Discard ping from WAN side” cause the router to not respond to the hacker scan packets from the public WAN IP address.

3.8.3 Packet Filtering



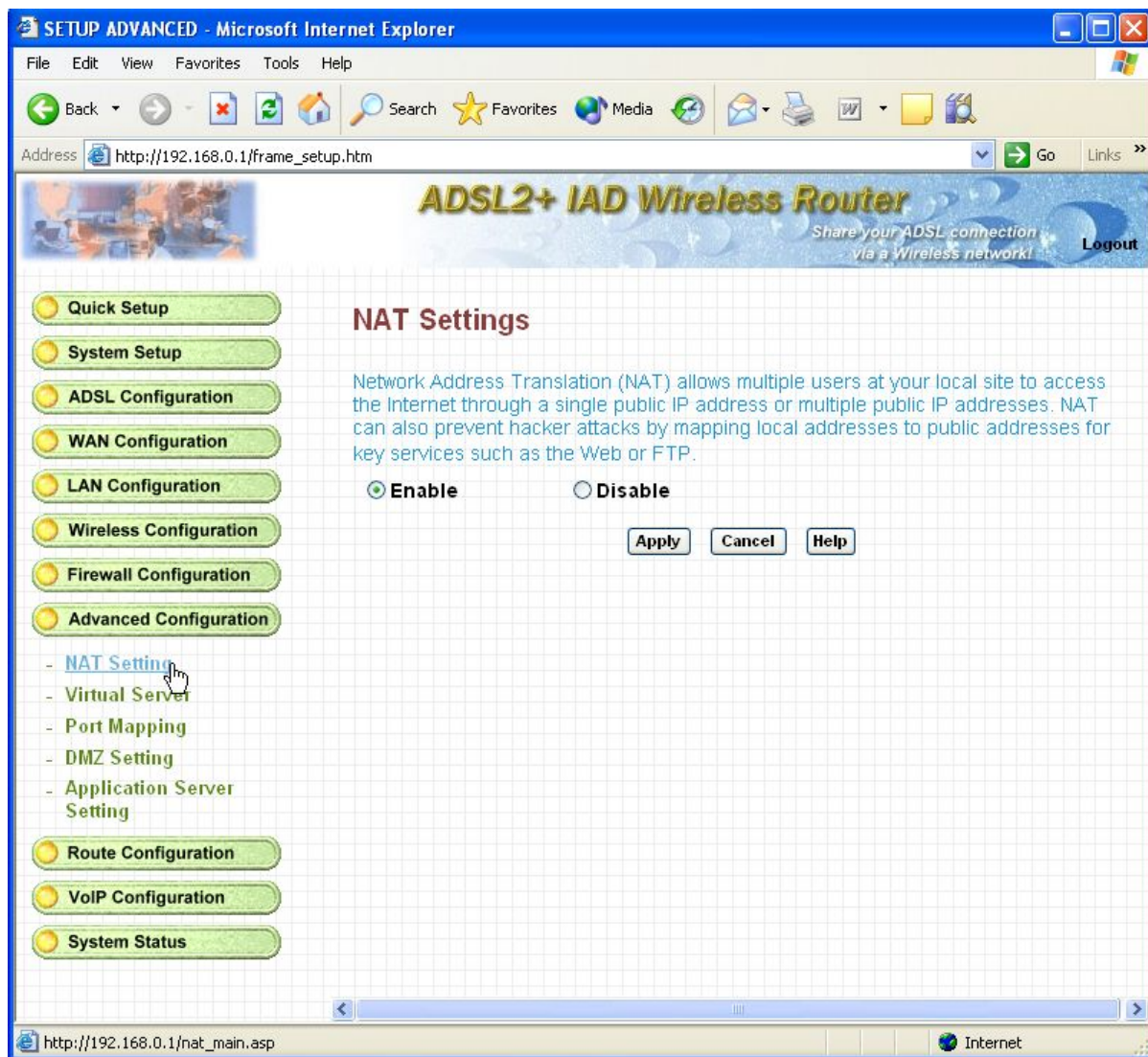
To add packet filtering rule to block certain packet.

3.8.4 MAC Control



You can block certain client PCs accessing the Internet based on MAC address.

3.9.1 NAT Setting



Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single public IP address or multiple public IP addresses. NAT can also prevent hacker attacks by mapping local addresses to public addresses for key services such as the Web or FTP.

3.9.2 Virtual Server

The screenshot shows the 'Virtual Server' configuration page of an ADSL2+ IAD Wireless Router. The browser window is titled 'SETUP ADVANCED - Microsoft Internet Explorer' and the address bar shows 'http://192.168.0.1/frame_setup.htm'. The page has a blue header with the router's name and a 'Logout' link. A left sidebar contains a menu of configuration options, with 'Virtual Server' highlighted. The main content area features a descriptive paragraph and a table for configuring virtual servers.

Virtual Server

You can configure the router as a virtual server so that remote users accessing services such as the Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port numbers), the router redirects the external service request to the appropriate server (located at another internal IP address).

ID	Private IP	Private Port	Type	Public Port	Enable
1	192.168.0.		☒ TCP ☐ UDP		☐
2	192.168.0.		☒ TCP ☐ UDP		☐
3	192.168.0.		☒ TCP ☐ UDP		☐
4	192.168.0.		☒ TCP ☐ UDP		☐
5	192.168.0.		☒ TCP ☐ UDP		☐
6	192.168.0.		☒ TCP ☐ UDP		☐
7	192.168.0.		☒ TCP ☐ UDP		☐

You can configure the router as a virtual server so that remote users accessing services such as the Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port numbers), the router redirects the external service request to the appropriate server (located at another internal IP address).

3.9.3 Port Mapping

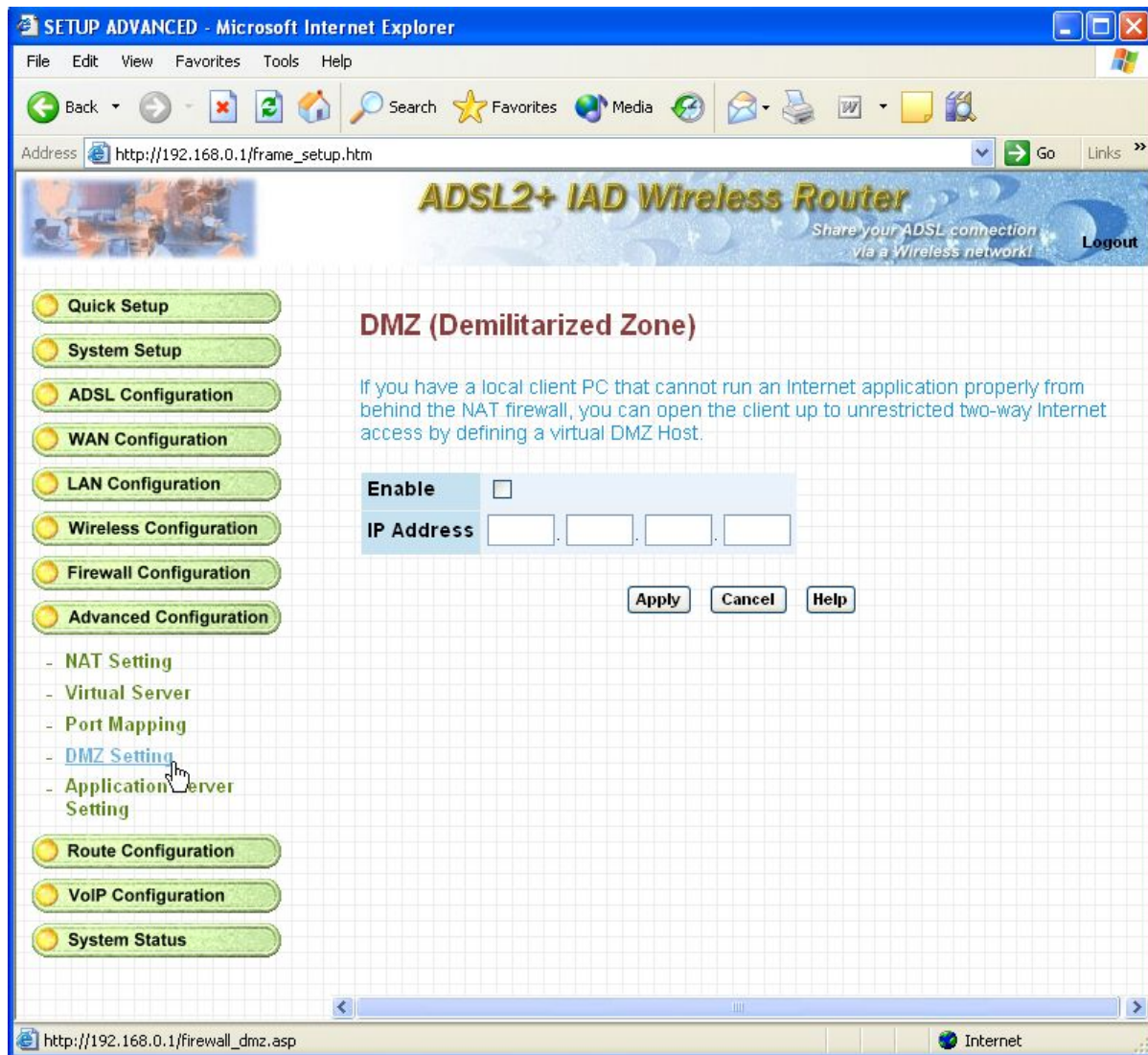
Port Mapping

For some applications, you need to assign a set or a range of ports to a specified local machine to route the packets. The router allows the user to configure the needed port mappings to suit such applications.

ID	Server IP	Mapping Ports	Enable
1	192.168.0.		☐
2	192.168.0.		☐
3	192.168.0.		☐
4	192.168.0.		☐
5	192.168.0.		☐
6	192.168.0.		☐
7	192.168.0.		☐
8	192.168.0.		☐
9	192.168.0.		☐

For some applications, you need to assign a set or a range of ports (example 4000-5000) to a specified local machine to route the packets. The router allows the user to configure the needed port mappings to suit such applications.

3.9.4 DMZ Setting



If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, you can open the client up to unrestricted two-way Internet access by defining a virtual DMZ Host.

3.9.5 Application Server Settings

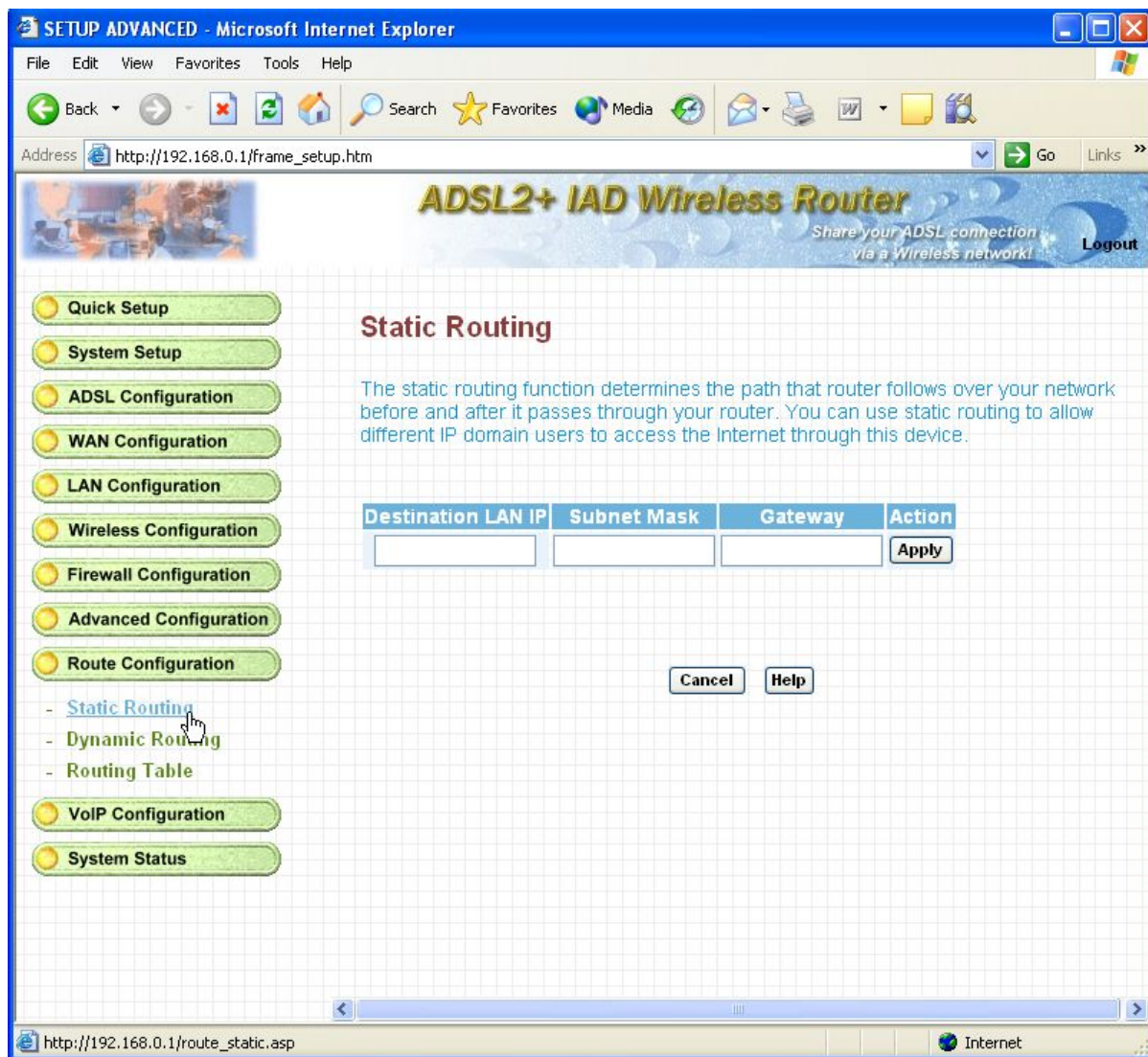
Application Server Settings

Application Name	Accept from Wan	Port	Accept from Lan
Web Server	☐	80	☒
Telnet Server	☐	23	☐
SSH Server	☐	22	☐
TFTP Server	☐	69	☐
FTP Server	☐	21	☐

Apply Cancel Help

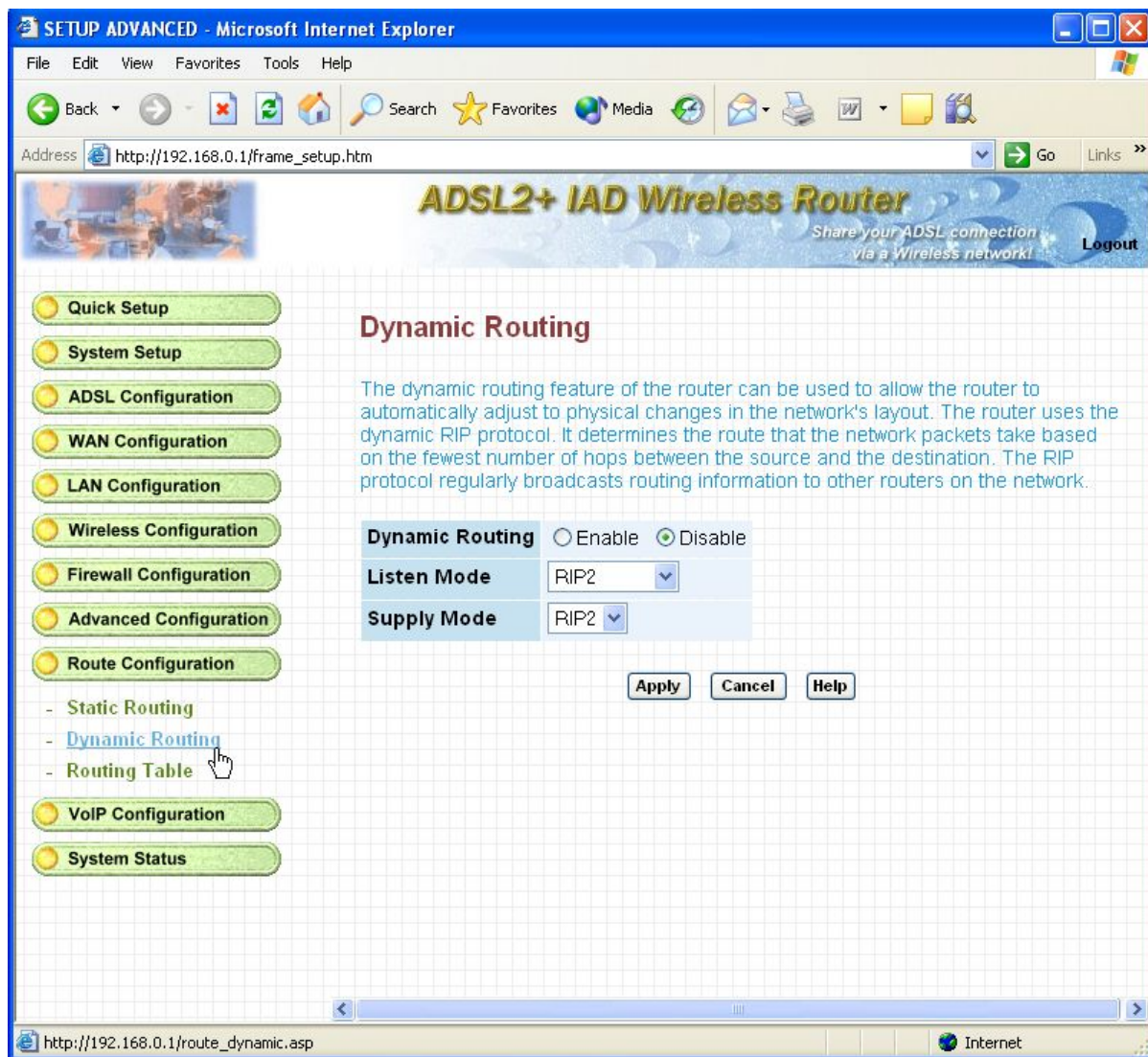
Supports WEB, Telnet, SSH, TFTP and FTP server.

3.10.1 Static Routing



The static routing function determines the path that router follows over your network before and after it passes through your router. You can use static routing to allow different IP domain users to access the Internet through this device.

3.10.2 Dynamic Routing



The dynamic routing feature of the router can be used to allow the router to automatically adjust to physical changes in the network's layout. The router uses the dynamic RIP protocol. It determines the route that the network packets take based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network.

3.10.3 Routing Table

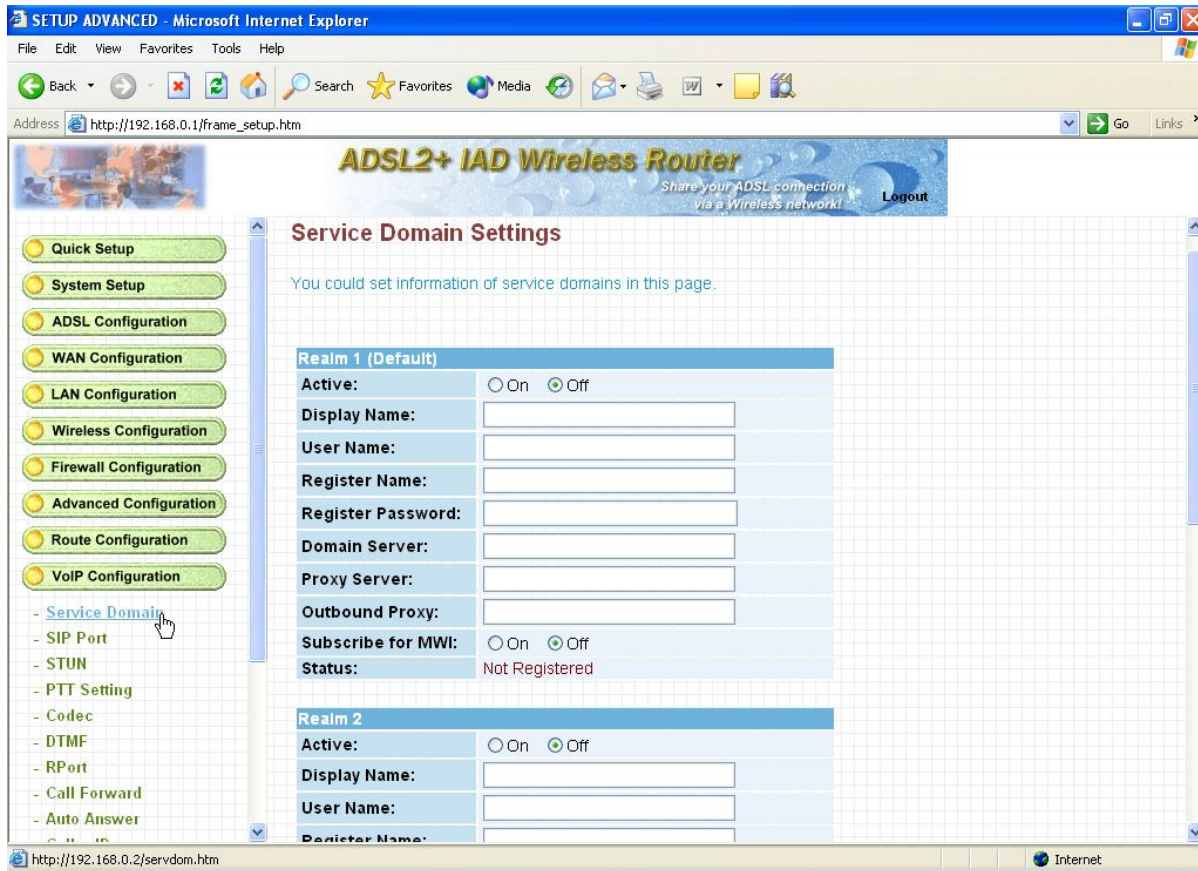
The screenshot shows the 'ADSL2+ IAD Wireless Router' configuration interface in a Microsoft Internet Explorer browser window. The address bar shows 'http://192.168.0.1/frame_setup.htm'. The page has a left sidebar with various configuration options, including 'Quick Setup', 'System Setup', 'ADSL Configuration', 'WAN Configuration', 'LAN Configuration', 'Wireless Configuration', 'Firewall Configuration', 'Advanced Configuration', 'Route Configuration', 'VoIP Configuration', and 'System Status'. The 'Route Configuration' section is expanded, showing 'Static Routing', 'Dynamic Routing', and 'Routing Table'. The 'Routing Table' is selected, and the main content area displays the title 'Routing Table' and a description: 'The Routing table allows you to see how many routings on your routing table and interface information.' Below this is a table with the following data:

Destination LAN IP	Subnet Mask	Gateway	Metric	Interface
192.168.0.0	255.255.255.0	0.0.0.0	0	br0

Below the table are 'Refresh' and 'Help' buttons. The status bar at the bottom shows 'http://192.168.0.1/route_table.asp' and 'Internet'.

The Routing table allows you to see how many routings on your routing table and interface information.

3.11.1 Service Domain – VoIP



In Service Domain Function you need to input the account and the related information in this page, please refer to your ISP provider. User can register three SIP accounts. User can dial the VoIP phone to your friends via first enable SIP account and receive the phone from these three SIP accounts. For the second phone you can use the same way to register.

- First you need click Active to enable the Service Domain, then you can input the following items:
- Display Name: you can input the name you want to display.
- User Name: you need to input the User Name get from your ISP.
- Register Name: you need to input the Register Name get from your ISP.
- Register Password: you need to input the Register Password get from your ISP.
- Domain Server: you need to input the Domain Server get from your ISP.
- Proxy Server: you need to input the Proxy Server get from your ISP.
- Outbound Proxy: you need to input the Outbound Proxy get from your ISP. If your ISP does not provide the information, then you can skip this item.
- User can see the Register Status in the Status item. If the item shows “Registered”, then your Gateway is registered to the ISP, you can make a phone call directly.

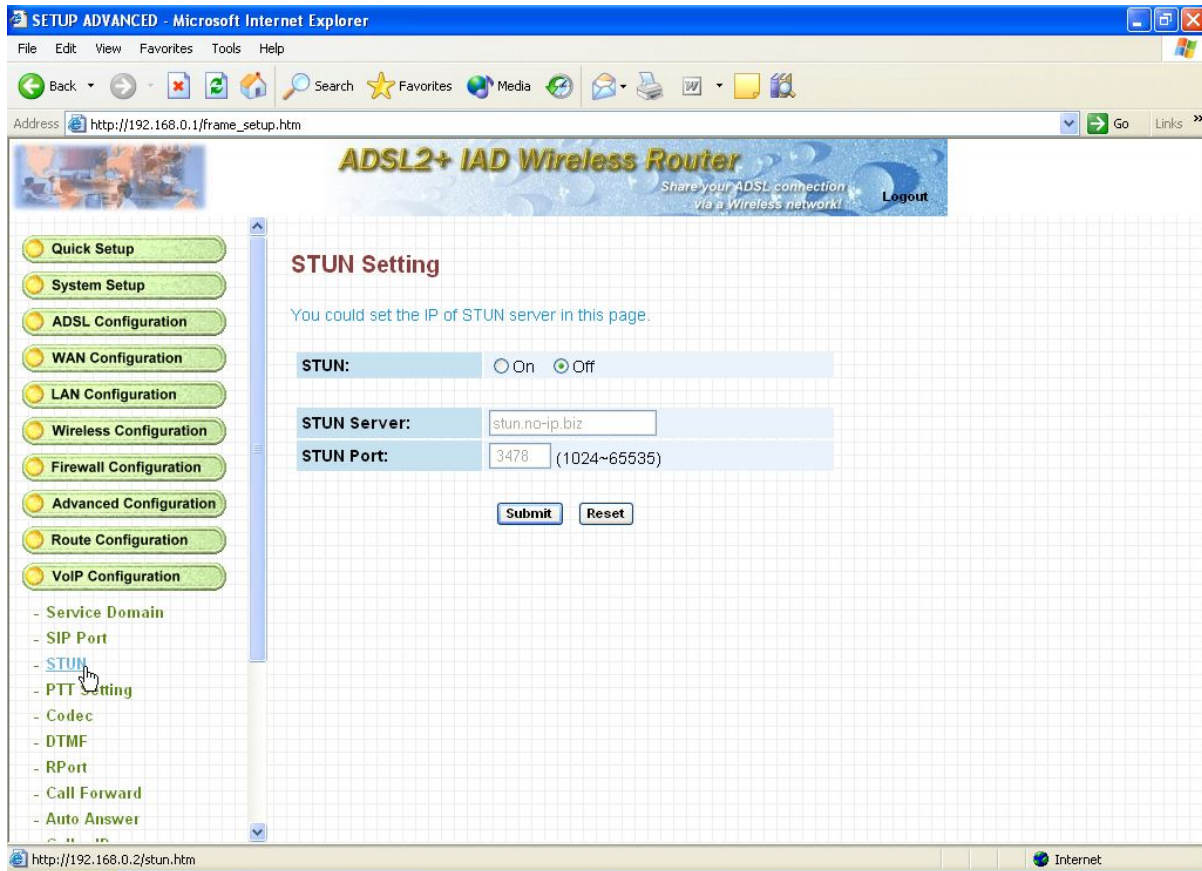
- If you have more than one SIP account, you can follow the steps to register to the other ISP account.
 - When you finished the setting, please click the Submit button.
 - If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button.
- The change you made will save into the system and the system will reboot automatically.

3.11.2 SIP Port -- VoIP



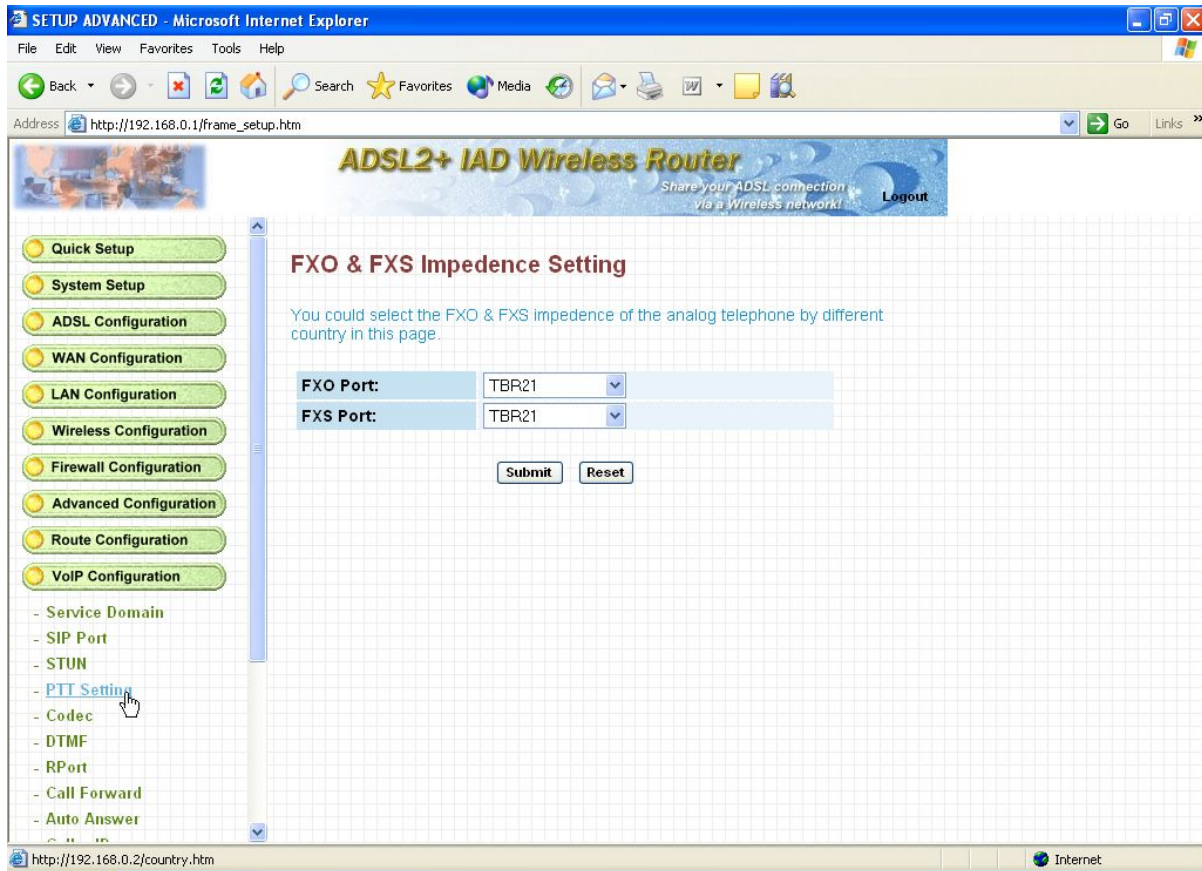
User can setup the SIP and RTP port number in this page. Each ISP provider will have different SIP/ RTP port setting, please refer to the ISP to setup the port number correctly. When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.3 STUN-- VoIP



Set a STUN server for VoIP Phone, you can enable or disable the phone at this page. When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.4 PTT Setting-- VoIP



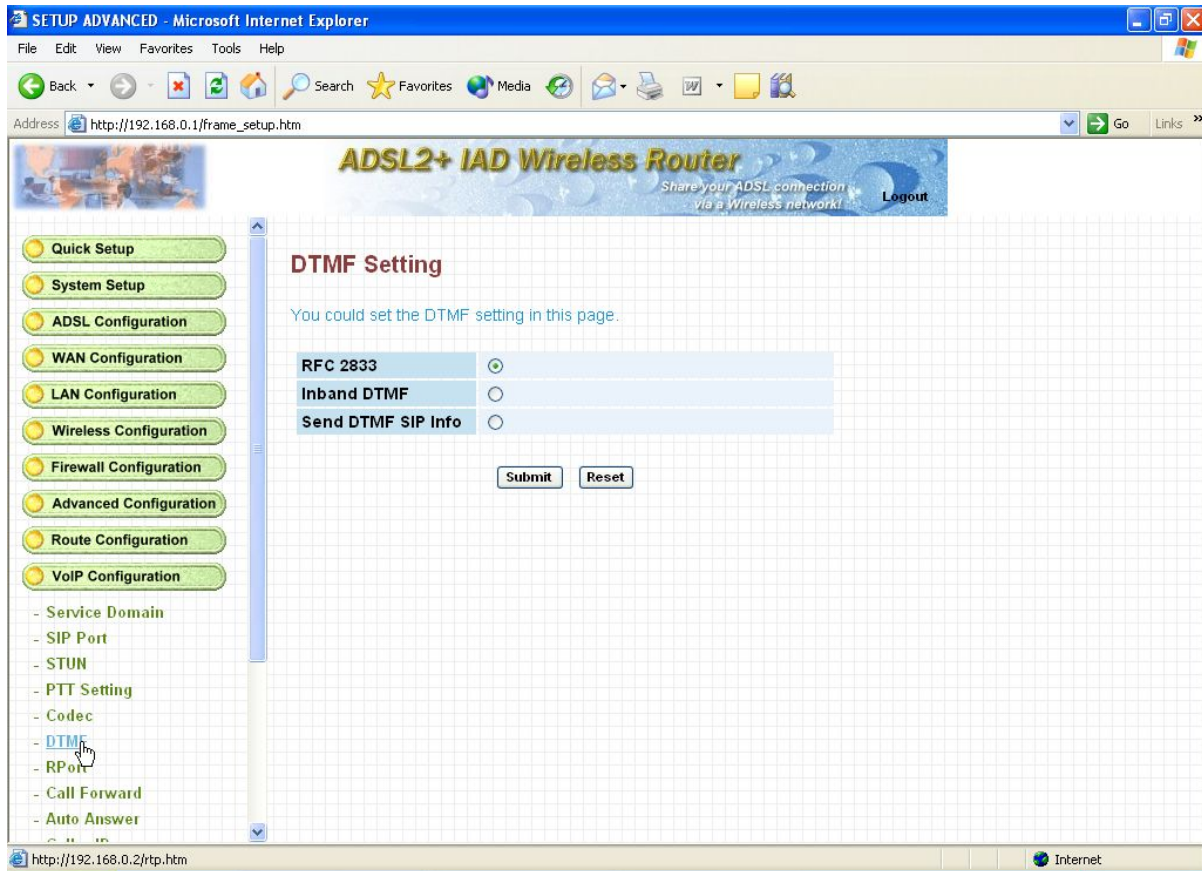
User can setup the FXO or FXS in this page. When you are using different country's PSTN Phone, you have to set the country's setting to meet the requirement. When you finished the setting, please click the Submit button.

3.11.5 Codec-- VoIP



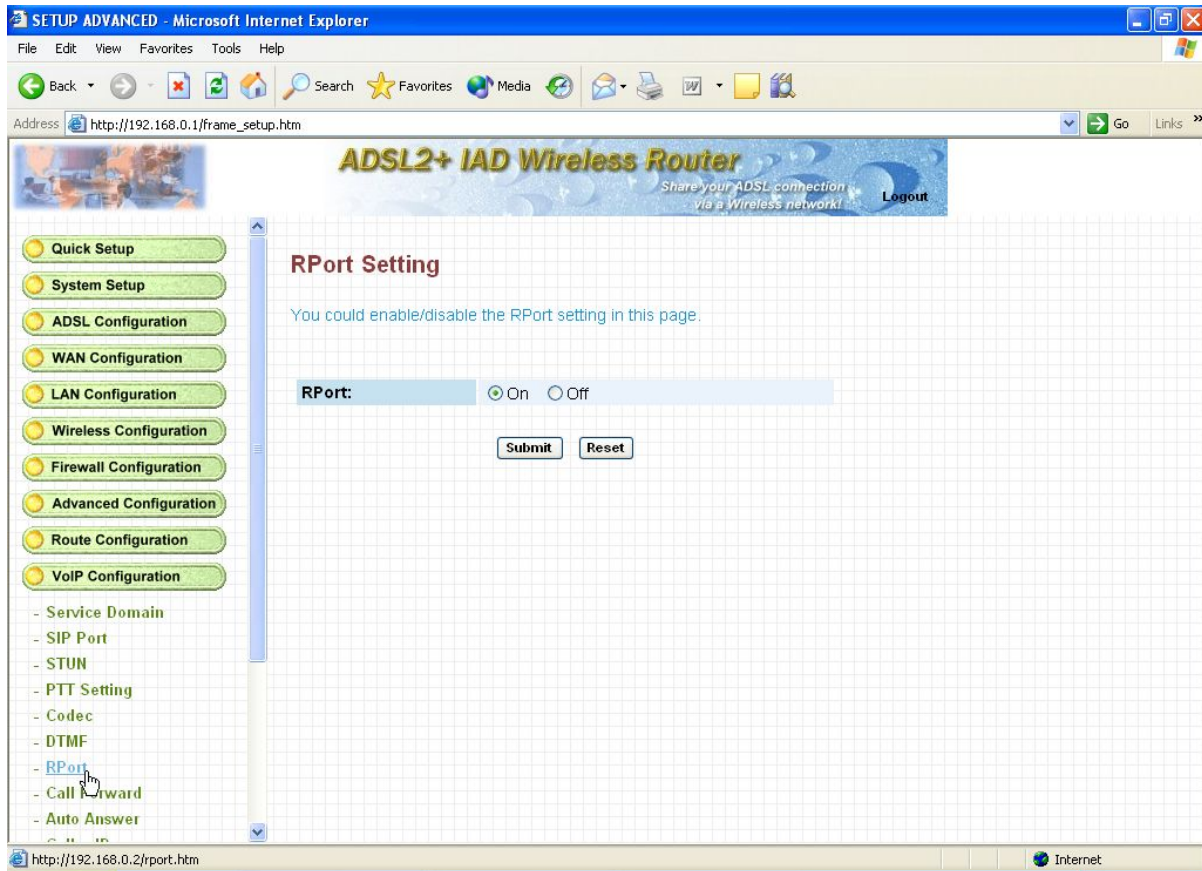
User can setup the Codec priority, RTP packet length, and VAD function in this page. User need to follow the ISP suggestion to setup these items. When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.6 DTMF-- VoIP



User can setup the RFC2833 Out-Band DTMF, In-band DTMF and Send DTMF SIP Info (2833) in this page. To change this setting, please follow your ISP or SIP server information. When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.7 RPort-- VoIP



User can setup the RPort Enable/Disable in this page. To change this setting, please follow your ISP or SIP server information. When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.8 Call Forward-- VoIP

The screenshot shows a web browser window titled "SETUP ADVANCED - Microsoft Internet Explorer" with the address bar showing "http://192.168.0.1/frame_setup.htm". The page is for the "ADSL2+ IAD Wireless Router" and displays the "Forward Setting" configuration page. On the left, a sidebar lists various configuration options, with "Call Forward" highlighted. The main content area includes a header for "Forward Setting" and a description: "You could set the forward number of your phone in this page." Below this, there are three sections for "All Forward:", "Busy Forward:", and "No Answer Forward:", each with radio buttons for "Off", "IP", and "PSTN". Under "All Forward:", there is a table with columns "Name" and "URL/Number" and a row for "All Fwd No.:". Similar rows exist for "Busy Fwd No.:" and "No Answer Fwd No.:". Below these, there is a "No Answer Fwd Time Out:" field with a value of "3" and a note "(2~8 Ring)". At the bottom, there are "Submit" and "Reset" buttons. The status bar at the bottom shows "http://192.168.0.2/phonefwd.htm" and "Internet".

Forward Setting

You could set the forward number of your phone in this page.

All Forward: ☒ Off ☐ IP ☐ PSTN

Busy Forward: ☒ Off ☐ IP

No Answer Forward: ☒ Off ☐ IP ☐ PSTN

	Name	URL/Number
All Fwd No.:		
Busy Fwd No.:		
No Answer Fwd No.:		

No Answer Fwd Time Out: 3 (2~8 Ring)

User can setup the phone number you want to forward in this page. There are three type of Forward mode. User can choose All Forward, Busy Forward, and No Answer Forward.

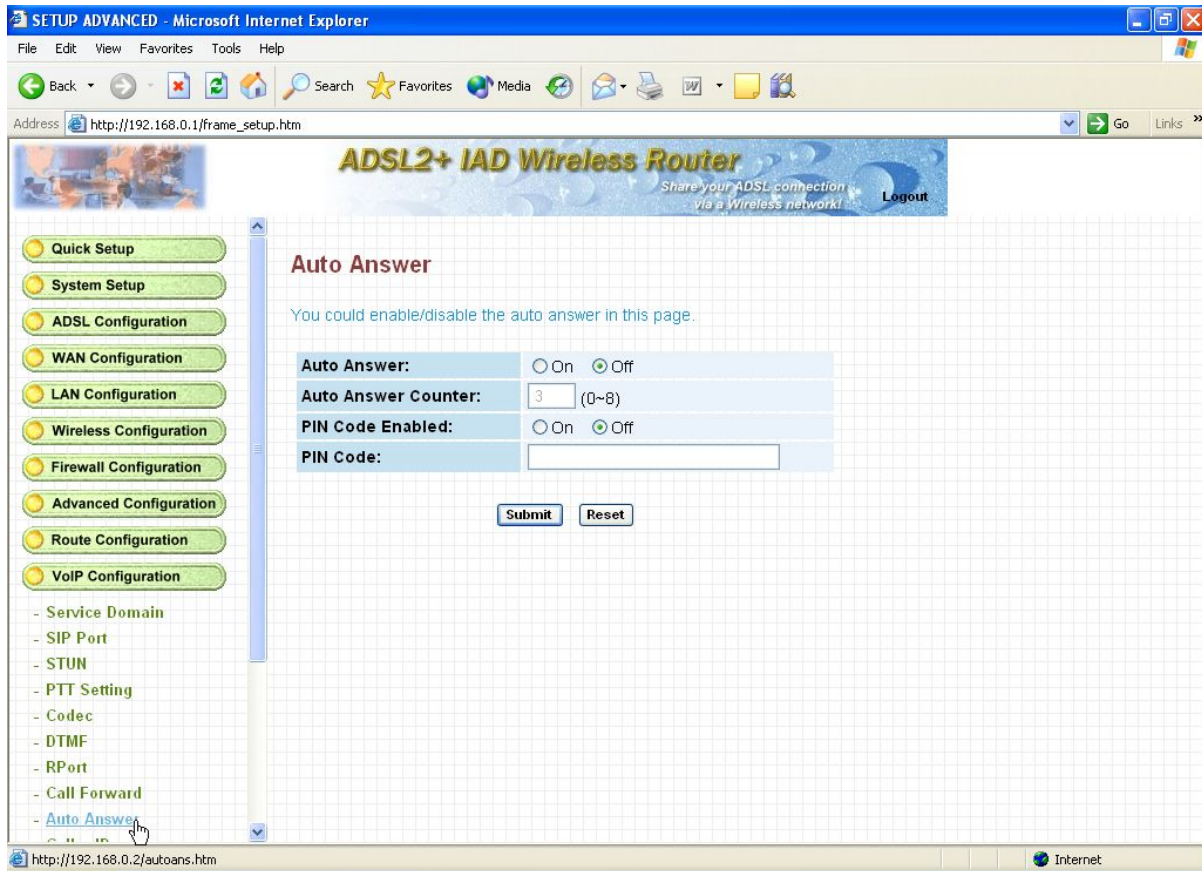
All Forward: All incoming call will forward to the number you choose. User can input the name and the phone number in URL field. If you select this function, then all the incoming call will direct forward to the speed dial number you choose.

Busy Forward: If you are on the phone, the new incoming call will forward to the number you choose. User can input the name and the phone number in URL field.

No Answer Forward: If you can not answer the phone, the incoming call will forward to the number you choose. User can input the name and the phone number in URL field. Also you have to set the Time Out time for system to start to forward the call to the number you choose.

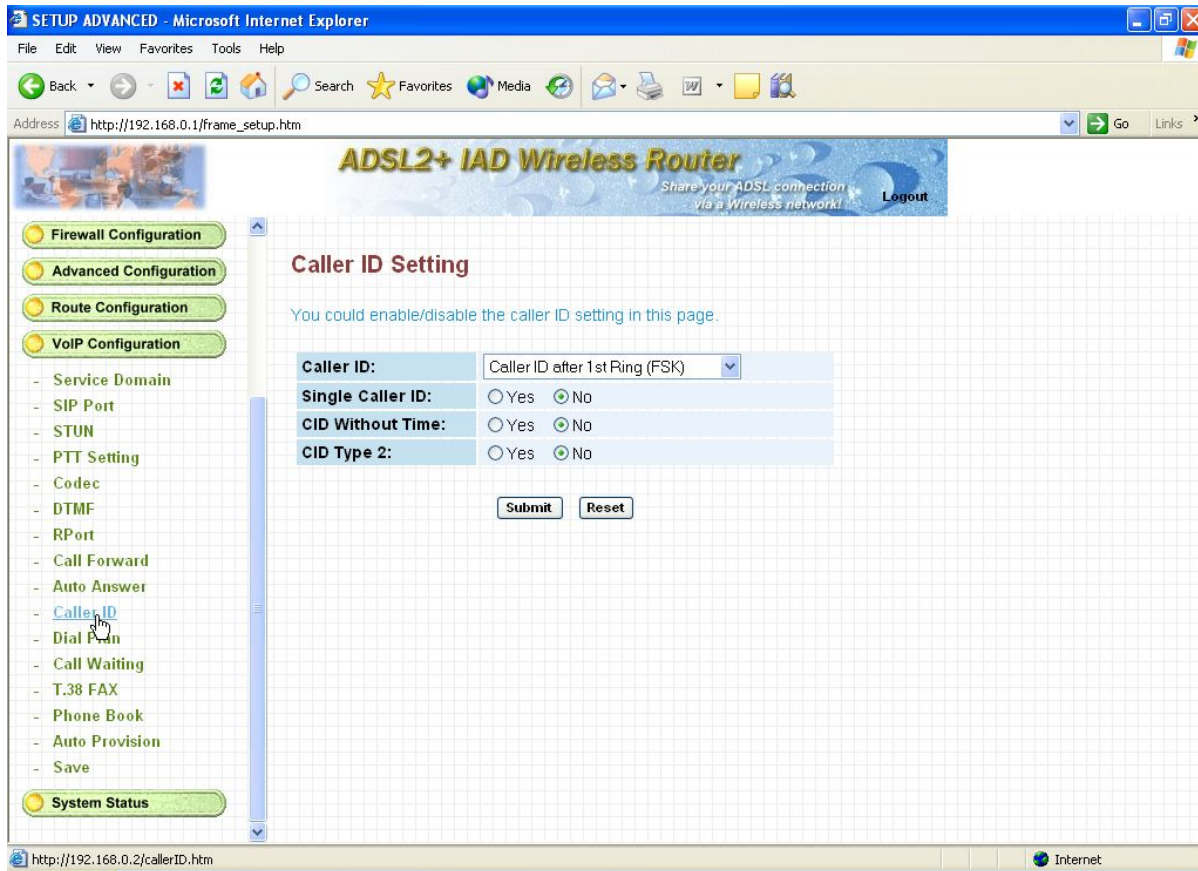
When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.9 Auto Answer-- VoIP



User can set the Auto Answer function to answer the incoming call by the phone. If the call is come from the IP, then the Gateway can let user to redial the call to PSTN phone number. If the call is coming from PSTN, then the Gateway can let user to redial to IP Phone number. Auto Answer Counter is to set after the ring counts meet the number you set then the auto answer will enable. For security issue, you'd better to set the PIN Code. If you have set the PIN code, you will hear a tone to inform you input the PIN Code then you can dial out.

3.11.10 Caller ID-- VoIP

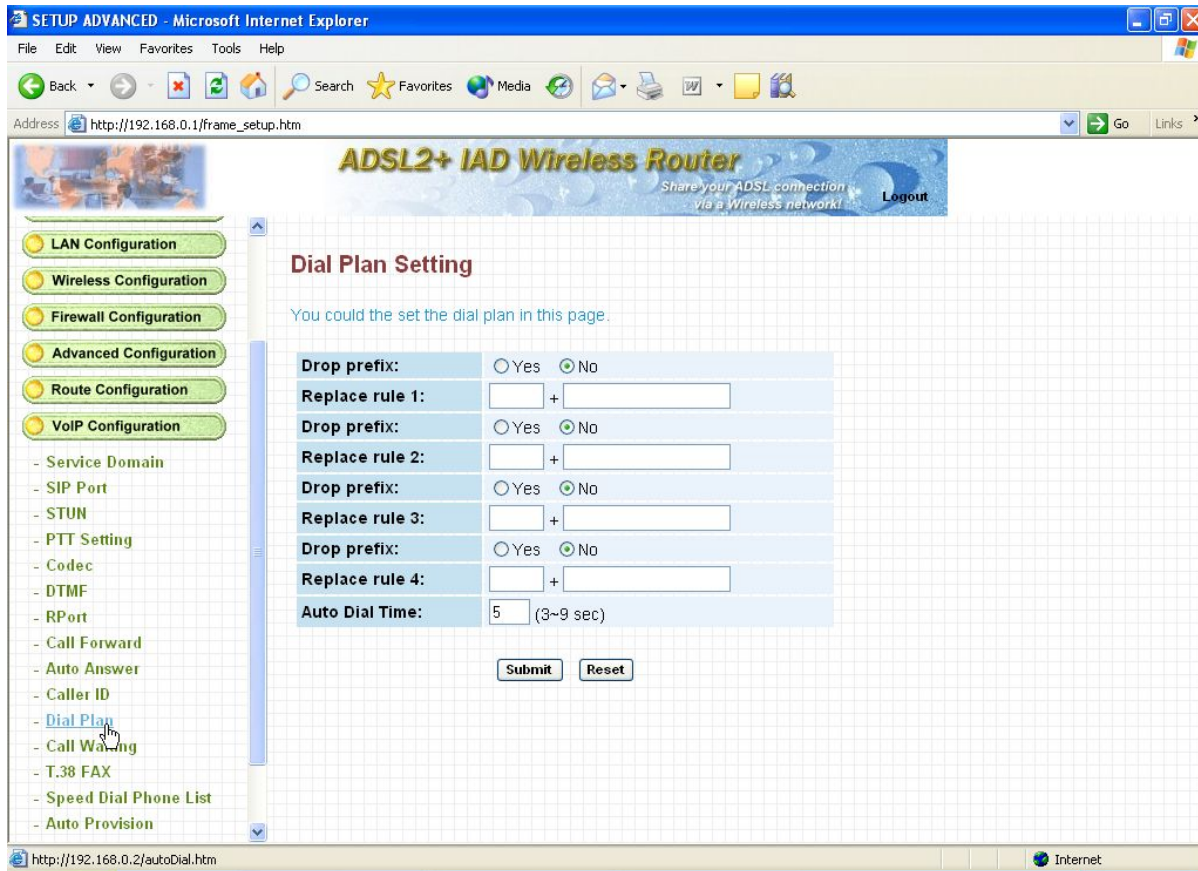


User can set the device to show Caller ID in your PSTN Phone or IP Phone.

There are four selection of Caller ID. You have to base on your environment to set the Caller ID function for FSK or DTMF. When you change the setting, please also double check the PTT setting in others. You need to choose the correct country code then the Caller ID will be effect.

When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.11 Dial Plan-- VoIP



This function is when you input the phone number by the keypad but you don't need to press "#". After time out the system will dial directly.

Symbols explain:

x or X	0,1,2,3,4,5,6,7,8,9
+	or

Replace rule: If replace prefix code is ON and prefix number is matched with rule then 005 will replace prefix.

Auto Dial Time: Stop dialing after seconds then send dial number out.

Dial Plan: When match with pattern then send dial number out but if first digit is '0' then dial plan will be ignored.

Example:

*xx	If matched with one of *00,*01....*99 then will send number out
#xx	If matched with one of #00,#01....#99 then will send number out
10x	If matched with one of 100,101....109 then will send number out
11x	If matched with one of 110,111....119 then will send number out

Xxxxxxxx	If dial with 8 digits then send number out
----------	--

Auto Prefix: Number for add before dial number.

Prefix Unset Plan: When first digit or dial number match with pattern then ignore auto prefix.

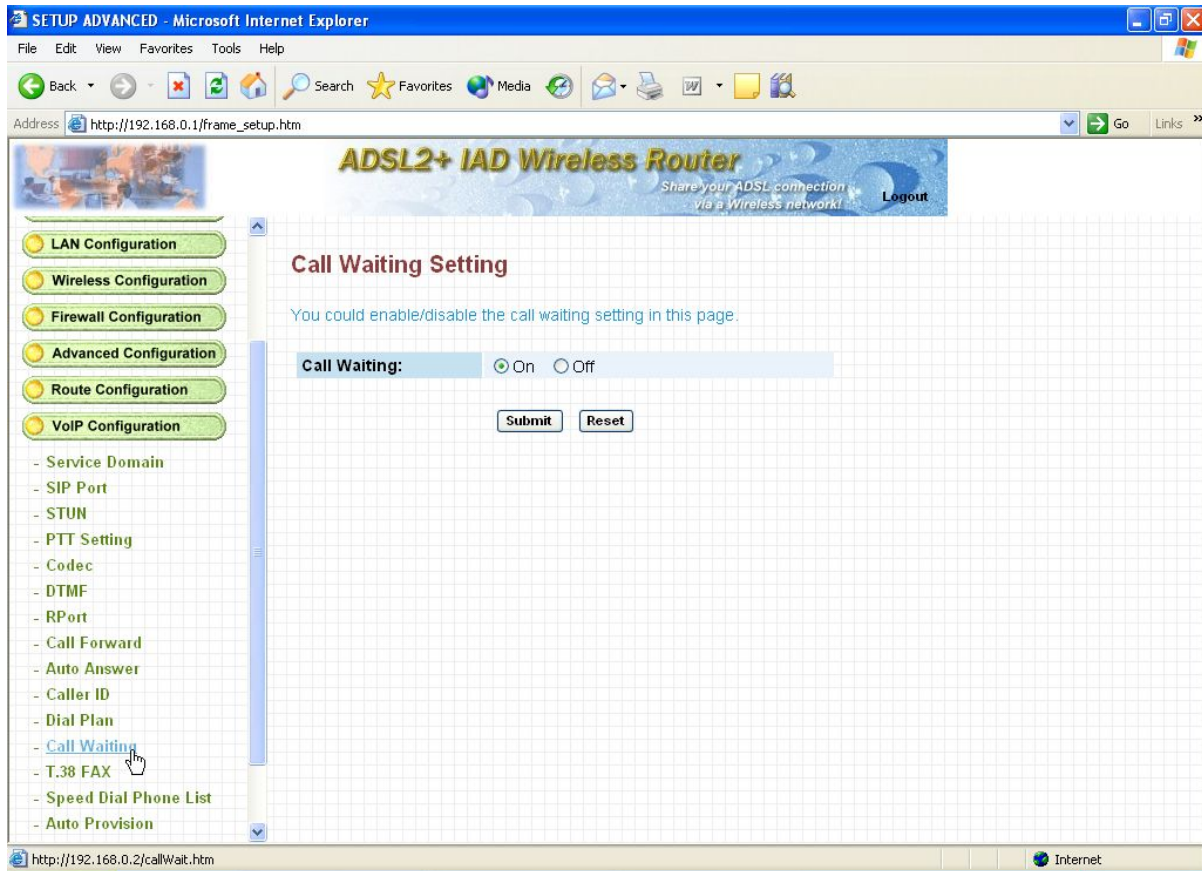
0	Ignore auto prefix if first digit is '0'
1	Ignore auto prefix if first digit is '1'
xxxxx	dial numbers are 4 digits ignore auto prefix
xxxxxx	dial numbers are 5 digits ignore auto prefix

When you finished the setting, please click the Submit button.

If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button.

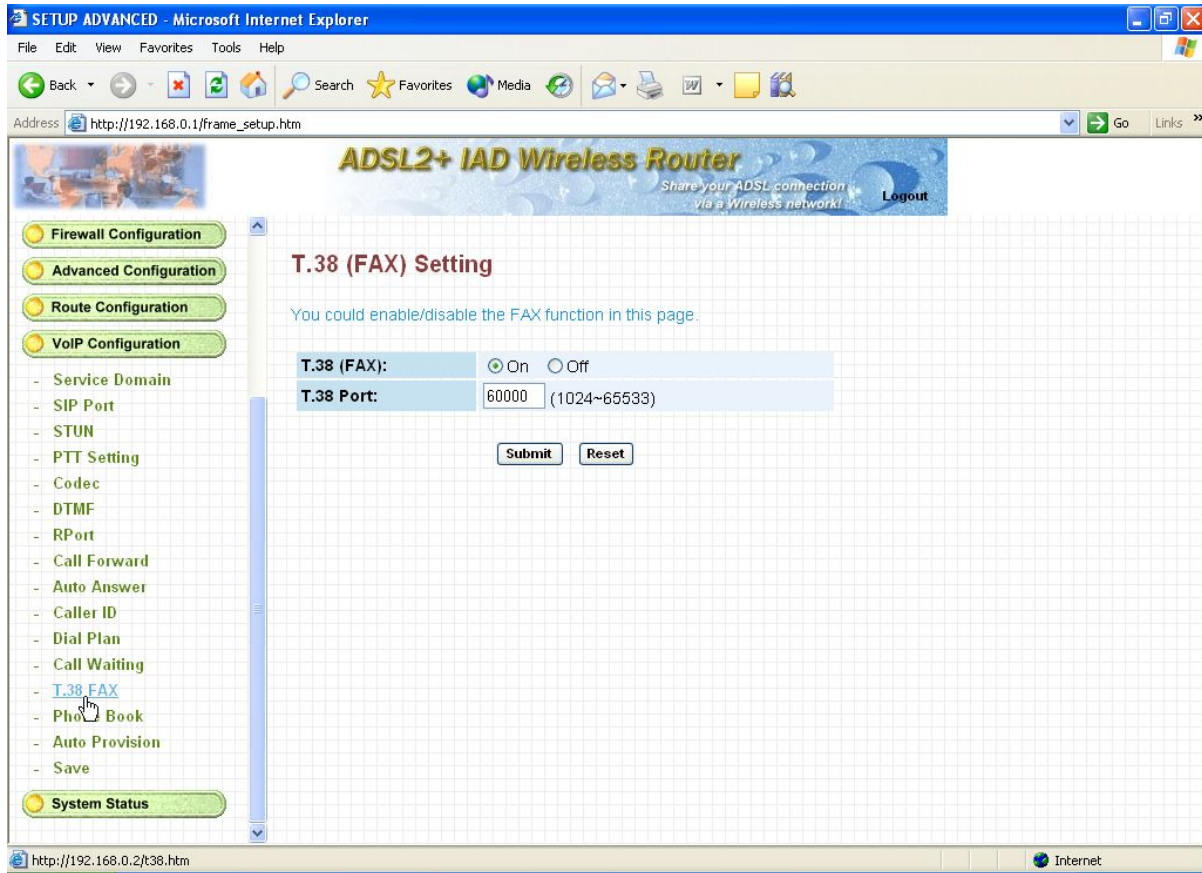
The change you made will save into the system and the system will reboot automatically.

3.11.12 Call Waiting-- VoIP



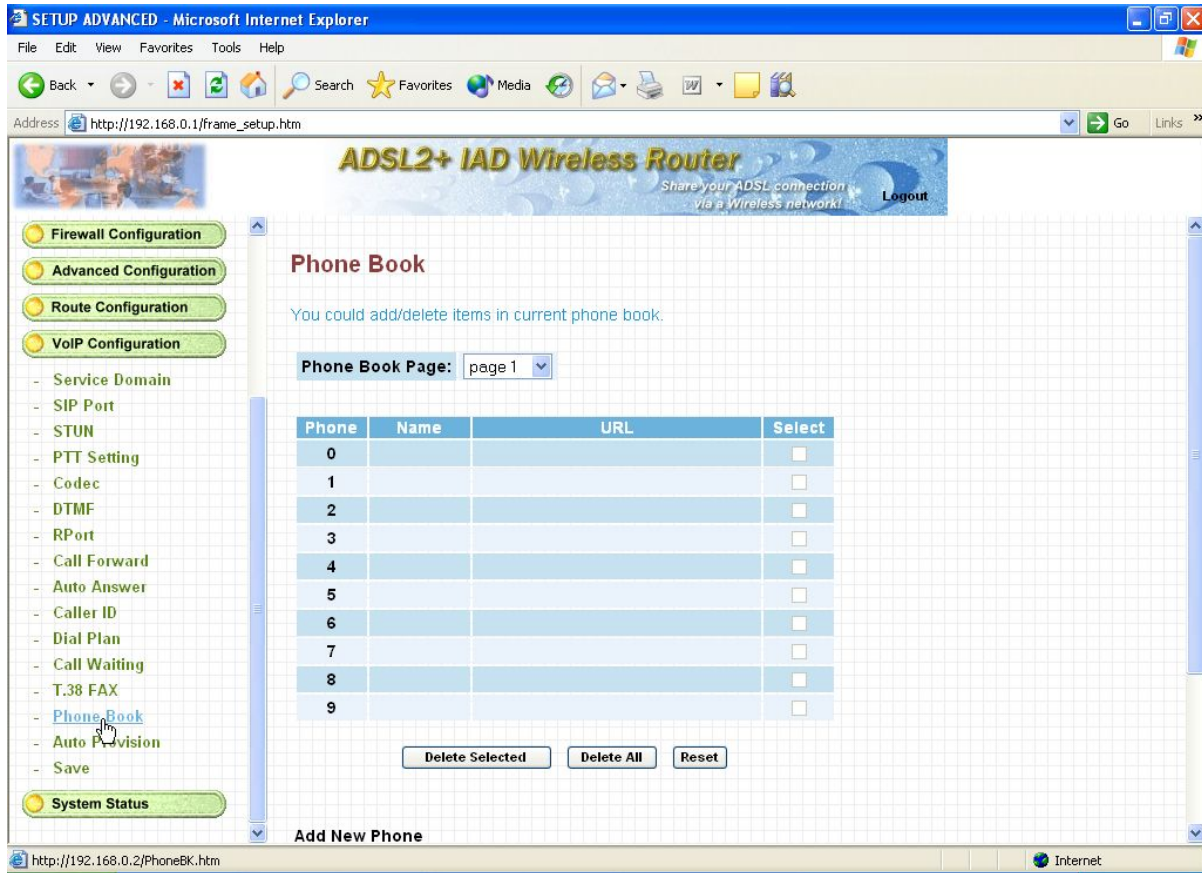
User can Enable/Disable the Call Waiting function, when you are talking with someone, there is a new incoming call, and you will hear the call waiting tone. When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.13 T.38 FAX-- VoIP



You can Enable/Disable the T.38 function. When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.14 Phone Book-- VoIP

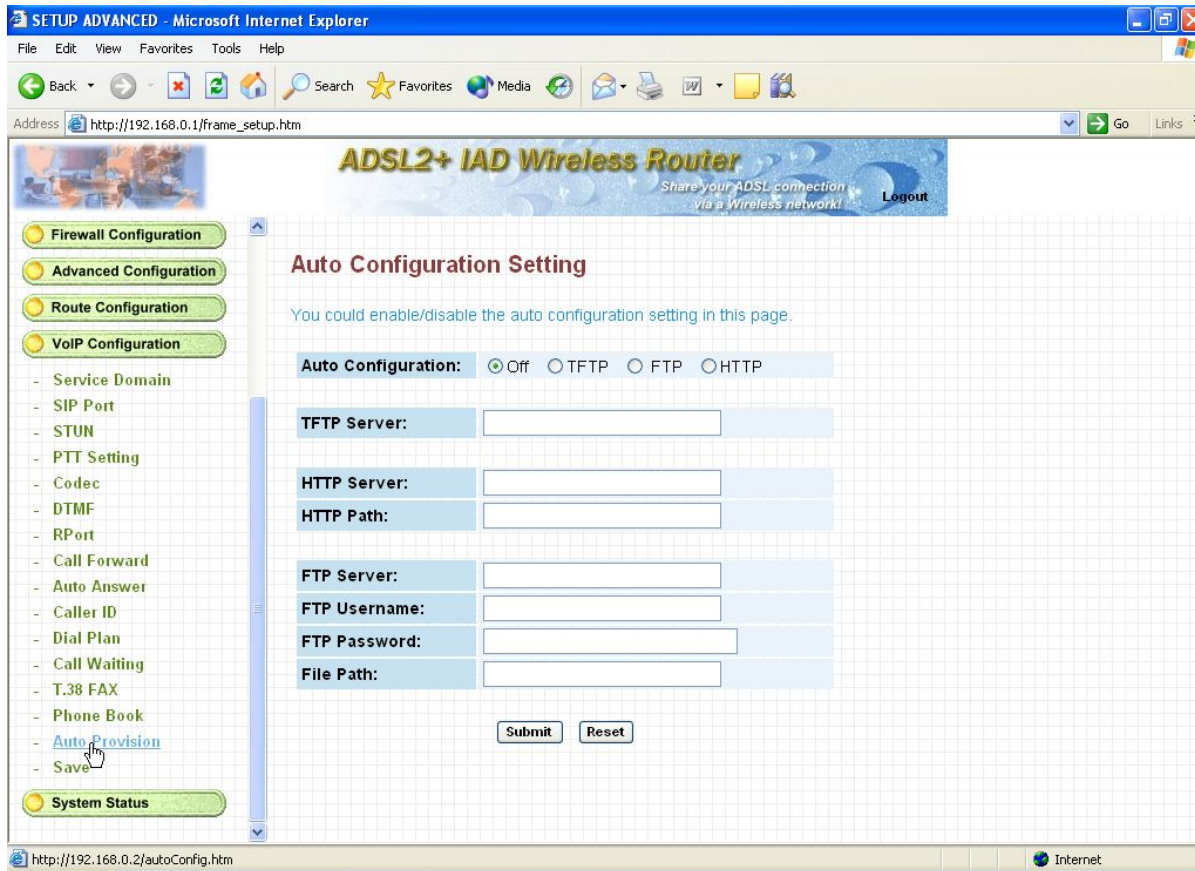


The Phone book can let user to setup the brevity code for easy to dial and memory. The phone book supports the phone number up to 140 records. When use dial the number, it will auto check the name of the phone book. If the name be found, it will dial as the URL settings. User can add/delete the Position, Name and URL in the Add new phone, and then click the "Add Phone" button.

If you want to delete a phone number, you can select the phone number you want to delete then click "Delete Selected" button.

If you want to delete all phone numbers, you can click "Delete All" button.

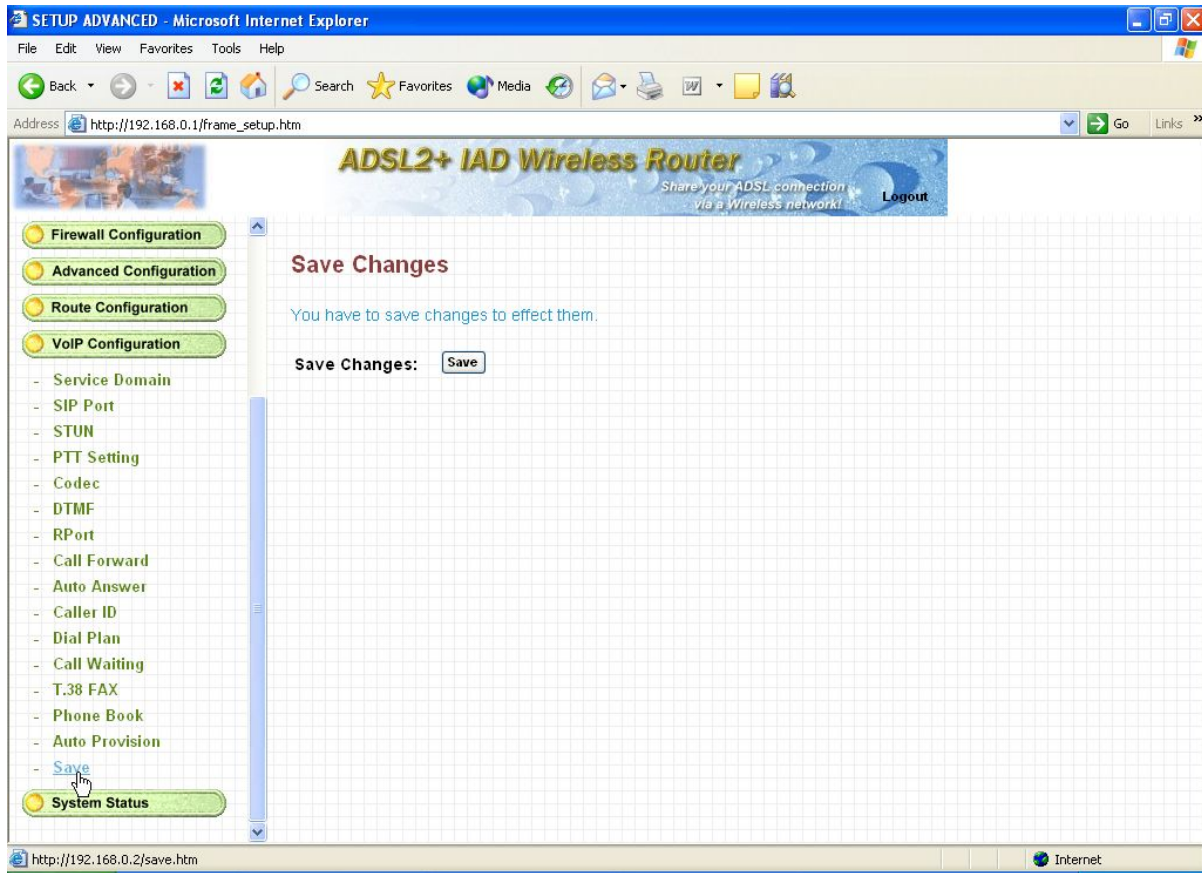
3.11.15 Auto Provision-- VoIP



User can setup the Auto Configuration Enable/Disable and auto configuration by FTP or TFTP. You need to select the way to do the Auto Configuration and set the Server IP address in this page. This function can automatically download the configure file to setup your Gateway.

When you finished the setting, please click the Submit button. If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will reboot automatically.

3.11.16 Save-- VoIP



All the VoIP setting changed need to save the changes, user can save the VoIP setting here.

3.12.1 System Status

The screenshot shows a web browser window titled "SETUP ADVANCED - Microsoft Internet Explorer". The address bar displays "http://192.168.0.1/frame_setup.htm". The page header includes the text "ADSL2+ IAD Wireless Router" and a "Logout" link. A sidebar on the left contains a list of configuration options: Quick Setup, System Setup, ADSL Configuration, WAN Configuration, LAN Configuration, Wireless Configuration, Firewall Configuration, Advanced Configuration, Route Configuration, VoIP Configuration, and System Status (which is highlighted with a mouse cursor). The main content area is titled "System Status" and displays three tables of information.

Information

Bootloader Version	2.0.13
BSP Version	2.0.17
Kernel Version	2.4.20-amazon-4.5.25
Software Version	4.5.25
ToolChain Version	2.0.5
ADSL Firmware Version	1.3.1.7.0.1

LAN

IP Address	192.168.0.1
Subnet Mask	255.255.255.0
MAC Address	00:05:B4:00:00:00
Wireless MAC Address	00:14:A5:45:00:40
DHCP Server	Enabled
Firewall	Enabled

Internet

DSL	CONNECTING
WAN IP	0.0.0.0
Subnet Mask	0.0.0.0
Gateway	0.0.0.0

The System Status page shows the WAN, LAN and router's firmware version.

3.13.1 Interactive Voice Response (IVR) interface for the Gateway

User can use the PSTN phone to configure the device. Please follow the instruction to configure your terminal adapter, before you start the change, you need to unlock the key phone pad first. After you change the settings, please reboot the router via key pad to enable the change.

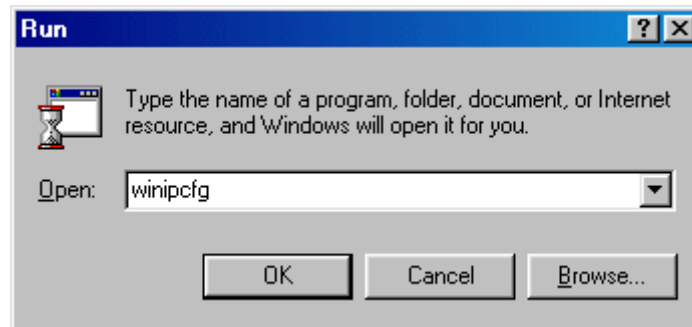
Group	IVR Action	IVR Menu Choice	Parameter(s)	Notes
Function	enable call waiting	#138#	None	Enable Call waiting
Function	disable call waiting	#139#	None	Disable call waiting
Function	unlock keypad	#190#	None	You have to unlock keypad first, and then you can change the setting by keypad.
Function	lock keypad	#191#	None	Lock keypad.
Function	Reboot	#195#	None	The system will reboot automatically.
Function	Factory Reset	#198#	None	System will automatically Reboot and restore to default setting. WARNING: ALL "User-Changeable" NONDEFAULT SETTINGS WILL BE LOST! This will include network and service provider data.
Info	Check IP Type	#121#	None	IVR will report the WAN Port DHCP is enabled or disabled.
Info	Check the Phone Number	#122#	None	IVR will report current in use VoIP number
Info	Check Network Mask	#123#	None	IVR will report the WAN Port network mask
Info	Check Gateway IP Address	#124#	None	IVR will report the WAN Port gateway IP address
Info	Check Primary DNS Server Setting	#125#	None	IVR will report the WAN Port Primary DNS server IP Address.
Info	Check IP Address	#126#	None	IVR will report the WAN port IP address
Info	Check Firmware Version	#128#	None	IVR will report the firmware version
Setting	Set DHCP client	#111#	None	The system will change the WAN port to DHCP Client type

Setting	Set Codec	#130+[1-8]#	1:G.711 u-Law, 2: G.711 a-Law, 3: G.723.1, 4: G.729a, 5: G.726 16K, 6: G.726 24K, 7: G.726 32K, 8: G.726 40K,	You can set the codec you want to the first priority.
Setting	Set Handset Gain	#131+[00~15]#	Handset Gain from 0~15	You can set the Handset gain to proper value, default is 10
Setting	Set Handset Volume	#132+[00~12]#	Handset Volume from 0~12	You can set the Handset volume to proper value, default is 10
Setting	TFTP Server IP Address	#135#	Set Auto configure TFTP Server IP Address	You can set the TFTP Server IP address
Setting	FTP Server IP Address	#136#	Set Auto configure FTP Server IP Address	You can set the FTP Server IP address
Setting	Auto configure mode	#137+[0~2]#	0: Disable, 1: TFTP mode, 2: FTP mode	You can set the Auto configuration mode, 0: Disable, 1: use TFTP Server, 2: user FTP Server
Setting	Blind transfer	flash#510# Phone no.#	None	B call A, and A transfer the call to C, A need to press flash button and then press #510#(phone no. of C)#.
Setting	Attendant transfer	flash#511# Phone no.#	None	B call A, and A transfer the call to C, A need to press flash button and then press #510#(phone no. of C)#.
Setting	3-way-calling	flash#512# Phone no.# flash	None	B call A, and A transfer the call to C, A need to press flash button and then press #512#(phone no. of C)#, while C pick up the phone, A need to press flash again, and then begin 3-way conference..
Setting	PSTN mode	0*	Set default use PSTN mode	Provide setting change default setting to PSTN mode

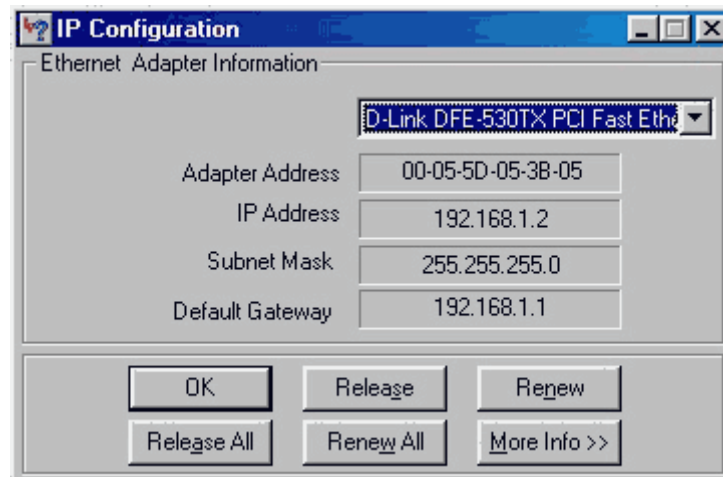
3.14.1 TCP/IP Settings for Windows Operating System

1. How can I find my IP Address in Windows 95, 98, or Me?

- Click on **Start**, then click on **Run**.
- The Run Dialogue Box will appear. Type **winipcfg** in the window as shown then click OK



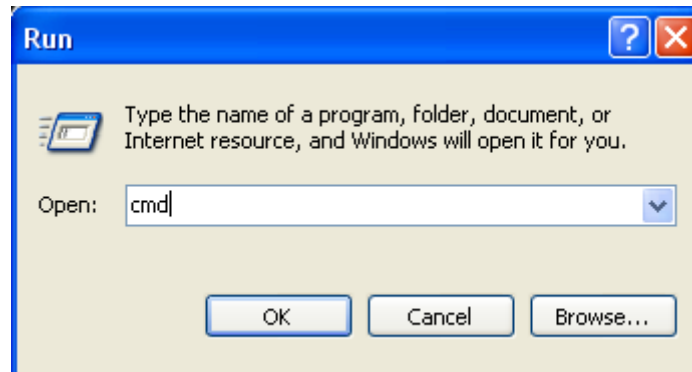
- The **IP Configuration** window will appear, displaying your **Ethernet Adapter Information**.
- Select your adapter from the drop down menu.
- If you do not see your adapter in the drop down menu, your adapter is not properly installed.



- After selecting your adapter, it will display your IP Address, subnet mask, and default gateway.
- Click **OK** to close the IP Configuration window.

2. How can I find my IP Address in Windows 2000/XP?

- Click on **Start** and select **Run**.
- Type **cmd** then click **OK**.



- From the Command Prompt, enter **ipconfig**. It will return your IP Address, subnet mask, and default gateway.

```
D:\WINNT\system32\CMD.EXE
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

D:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection:

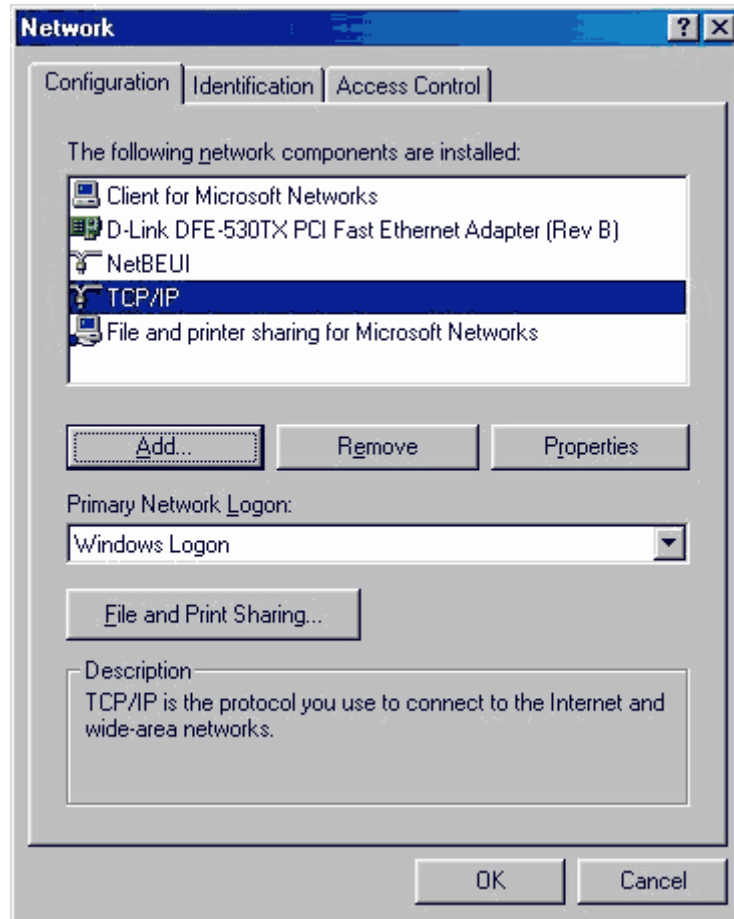
    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 192.168.0.174
    Subnet Mask . . . . .             : 255.255.255.0
    Default Gateway . . . . .         : 192.168.0.1

D:\>_
```

- Type **exit** to close the command prompt.
- Make sure you take note of your computer's Default Gateway IP Address. The Default Gateway is the IP Address of the router. By default, it should be 192.168.0.1

3. How can I assign a Static IP Address in Windows 98/Me?

- From the desktop, right-click on the **Network Neighborhood** icon (Win ME - My Network Places) and select **Properties**.
- Highlight **TCP/IP** and click the **Properties** button. If you have more than 1 adapter, then there will be a TCP/IP “Binding” for each adapter. Highlight **TCP/IP > (your network adapter)** and then click **Properties**.



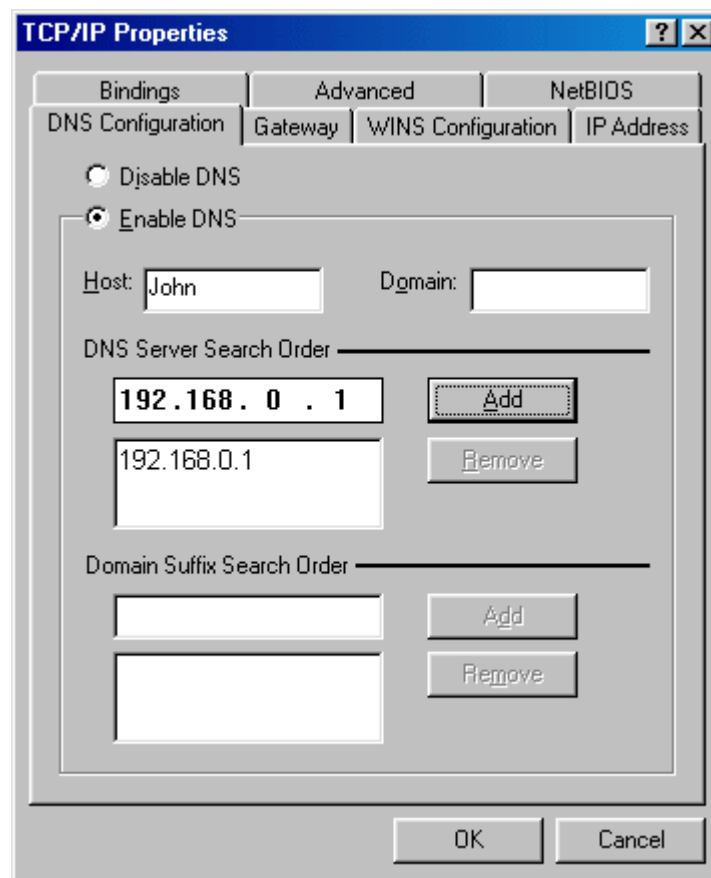
- Click **Specify an IP Address**.
- Enter in an IP Address that is on the same subnet as the LAN IP Address on your router. Example: If the router's LAN IP Address is 192.168.0.1, make your IP Address 192.168.0.X where X is between 2-99. Make sure that the number you choose is not in use on the network.

The screenshot shows the 'TCP/IP Properties' dialog box with the 'IP Address' tab selected. The 'Obtain an IP address automatically' radio button is unselected, and the 'Specify an IP address' radio button is selected. Below this, the 'IP Address' field contains '192.168.0.2' and the 'Subnet Mask' field contains '255.255.255.0'. The 'OK' and 'Cancel' buttons are at the bottom right.

- Click on the **Gateway** tab.
- Enter the LAN IP Address of your router here (192.168.0.1).
- Click **Add** when finished.

The screenshot shows the 'TCP/IP Properties' dialog box with the 'Gateway' tab selected. The 'New gateway' field contains '192.168.0.1' and the 'Add' button is visible. Below, the 'Installed gateways' list contains '192.168.0.1' and the 'Remove' button is visible. The 'OK' and 'Cancel' buttons are at the bottom right.

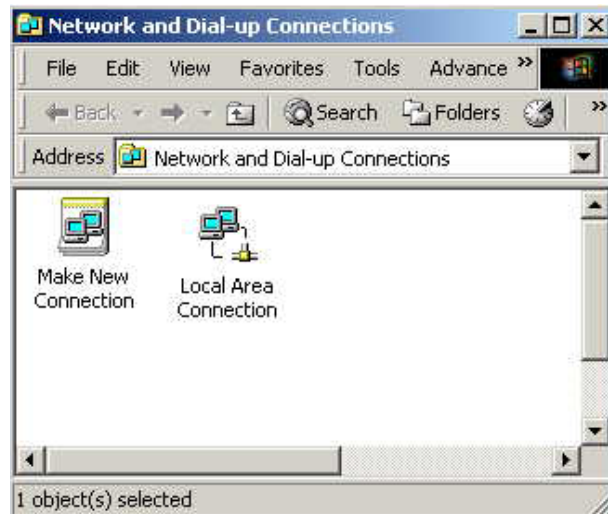
- Click on the **DNS Configuration** tab.
- Click **Enable DNS**. Type in a **Host** (can be any word). Under DNS server search order, enter the LAN IP Address of your router (192.168.0.1). Click **Add**.



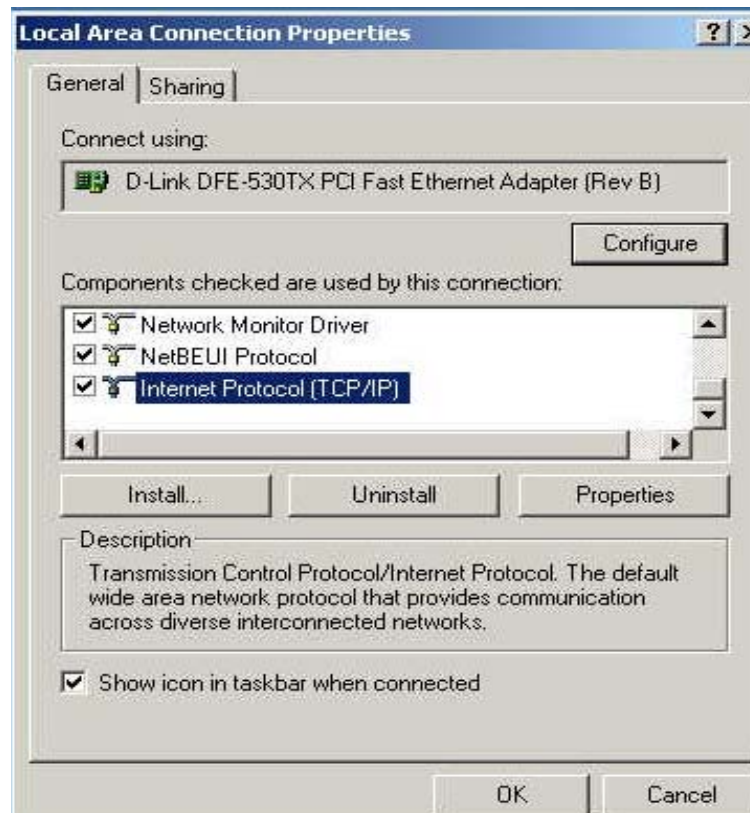
- Click **OK** twice.
- When prompted to reboot your computer, click **Yes**. After you reboot, the computer will now have a static, private IP Address.

4. How can I assign a Static IP Address in Windows 2000?

- Right-click on **My Network Places** and select **Properties**.
- Right-click on the **Local Area Connection** which represents your network card and select **Properties**.



- Highlight **Internet Protocol (TCP/IP)** and click **Properties**.



- Click **Use the following IP Address** and enter an IP Address that is on the same subnet as the LAN IP Address on your router. Example: If the router's LAN IP Address is 192.168.0.1, make your IP Address 192.168.0.X where X = 2-99. Make sure that the number you choose is not in use on the network.
- Set the **Default Gateway** to be the same as the LAN IP Address of your router (192.168.0.1).
- Set the **Primary DNS** to be the same as the LAN IP address of your router (192.168.0.1).
- **The Secondary DNS** is not needed or enter a DNS server from your ISP.
- Click **OK** twice. You may be asked if you want to reboot your computer. Click **Yes**.

5. How can I assign a Static IP Address in Windows XP?

- Click on **Start > Control Panel > Network and Internet Connections > Network connections**.
- See the steps for assigning a static IP address in Windows 2000 and continue from there.

Internet Protocol (TCP/IP) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 0 . 14

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 0 . 1

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: 192 . 168 . 0 . 1

Alternate DNS server: . . .

Advanced...

OK Cancel

- Access the Web management. Open your Web browser and enter the IP Address of your router device in the address bar. This should open the login page for the Web management. Follow instructions to login and complete the configuration.

Appendix A Glossary

Address mask

A bit mask used to select bits from an Internet address for subnet addressing. The mask is 32 bits long and selects the network portion of the Internet address and one or more bits of the local portion. Sometimes called subnet mask.

AAL5

ATM Adaptation Layer - This layer maps higher layer user data into ATM cells, making the data suitable for transport through the ATM network.

ADSL

Asymmetric digital subscriber line.

ATM

Asynchronous Transfer Mode - A cell-based data transfer technique in which channel demand determines packet allocation.

ATM offers fast packet technology, real time; demand led switching for efficient use of network resources.

AWG

American Wire Gauge - The measurement of thickness of a wire.

Bridge

A device connects two or more physical networks and forwards packets between them. Bridges can usually be made to filter packets, that is, to forward only certain traffic. Related devices are: repeaters which simply forward electrical signals from one cable to the other, and full-fledged routers which make routing decisions based on several criteria.

Broadband

Characteristic of any network multiplexes independent network carriers onto a single cable. Broadband technology allows several networks to coexist on one single cable; traffic from one network does not interfere with traffic from another. Broadcast A packet delivery system where a copy of a given packet is given to all hosts attached to the network. Example: Ethernet.

CO

Central Office. Refers to equipment located at a Telco or service provider's office.

CPE

Customer Premises Equipment located in a user's premises

DHCP (Dynamic Host Configuration Protocol)

DHCP is software that automatically assigns IP addresses to client stations logging onto a TCP/IP network.

DHCP eliminates having to manually assign permanent IP addresses to every device on your network. DHCP software typically runs in servers and is also found in network devices such as Routers.

DMT

Discrete Multi-Tone frequency signal modulation

Downstream rate

The line rate for return messages or data transfers from the network machine to the user's premises machine.

DSLAM

Digital Subscriber Line Access Multiplex

Dynamic IP Addresses

A dynamic IP address is an IP address that is automatically assigned to a client station (computer, printer, etc.) in a TCP/IP network. Dynamic IP addresses are typically assigned by a DHCP server, which can be a computer on the network or another piece of hardware, such as the Router. A dynamic IP address may change every time your computer connects to the network.

Encapsulation

The technique used by layered protocols in which a layer adds header information to the protocol data unit (PDU) from the layer above. As an example, in Internet terminology, a packet would contain a header from the physical layer, followed by a header from the network layer (IP), followed by a header from the transport layer (TCP), followed by the application protocol data.

Ethernet

One of the most common local area network (LAN) wiring schemes, Ethernet has a transmission rate of 10 Mbps.

FTP

File Transfer Protocol. The Internet protocol (and program) used to transfer files between hosts.

Hop count

A measure of distance between two points on the Internet. It is equivalent to the number of gateways that separate the source and destination.

HTML

Hypertext Markup Language - The page-coding language for the World Wide Web.

HTML browser

A browser used to traverse the Internet, such as Netscape or Microsoft Internet Explorer.

http

Hypertext Transfer Protocol - The protocol used to carry world-wide-web (www) traffic between a www browser computer and the www server being accessed.

ICMP

Internet Control Message Protocol - The protocol used to handle errors and control messages at the IP layer. ICMP is actually part of the IP protocol.

Internet address

An IP address is assigned in blocks of numbers to user organizations accessing the Internet. These addresses are established by the United States Department of Defense's Network Information Center. Duplicate addresses can cause major problems on the network, but the NIC trusts organizations to use individual addresses responsibly. Each address is a 32-bit address in the form of x.x.x.x where x is an eight-bit number from 0 to 255. There are three classes: A, B and C, depending on how many computers on the site are likely to be connected.

Internet Protocol (IP)

The network layer protocol for the Internet protocol suite

IP address

The 32-bit address assigned to hosts that want to participate in a TCP/IP Internet.

ISP

Internet service provider - A company allows home and corporate users to connect to the Internet.

MAC

Media Access Control Layer - A sub-layer of the Data Link Layer (Layer 2) of the ISO OSI Model responsible for media control.

MIB

Management Information Base - A collection of objects can be accessed via a network management protocol, such as SNMP and CMIP (Common Management Information Protocol).

NAT

Network Address Translation - A proposal for IP address reuse, where the local IP address is mapped to a globally unique address.

NVT

Network Virtual Terminal

PAP

Password Authentication Protocol

PORT

The abstraction used by Internet transport protocols to distinguish among multiple simultaneous connections to a single destination host.

POTS

Plain Old Telephone Service - This is the term used to describe basic telephone service.

PPP

Point-to-Point-Protocol - The successor to SLIP, PPP provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits.

PPPoE

PPP over Ethernet is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

Remote server

A network computer allows a user to log on to the network from a distant location.

RFC

Request for Comments - Refers to documents published by the Internet Engineering Task Force (IETF) proposing standard protocols and procedures for the Internet. RFCs can be found at www.ietf.org.

Route

The path that network traffic takes from its source to its destination. The route a datagram may follow can include many gateways and many physical networks. In the Internet, each datagram is routed separately.

Router

A system responsible for making decisions about which of several paths network (or Internet) traffic will follow. To do this, it uses a routing protocol to gain information about the network and algorithms to choose the best route based on several criteria known as "routing metrics".

Routing table

Information stored within a router that contains network path and status information. It is used to select the most appropriate route to forward information along.

Routing Information Protocol

Routers periodically exchange information with one another so that they can determine minimum distance paths between sources and destinations.

SNMP

Simple Network Management Protocol - The network management protocol of choice for TCP/IP-based Internet.

SOCKET

- (1) The Berkeley UNIX mechanism for creating a virtual connection between processes.
- (2) IBM term for software interfaces that allow two UNIX application programs to talk via TCP/IP protocols.

Spanning-Tree Bridge Protocol (STP)

Spanning-Tree Bridge Protocol (STP) - Part of an IEEE standard. A mechanism for detecting and preventing loops from occurring in a multi-bridged environment. When three or more LAN's segments are connected via bridges, a loop can occur. Because a bridge forwards all packets that are not recognized as being local, some packets can circulate for long periods of time, eventually degrading system performance. This algorithm ensures only one path connects any pair of stations, selecting one bridge as the 'root' bridge, with the highest priority one as identifier, from which all paths should radiate.

Spoofing

A method of fooling network end stations into believing that keep alive signals have come from and returned to the host. Polls are received and returned locally at either end

Static IP Addresses

A static IP address is an IP address permanently assigned to computer in a TCP/IP network. Static IP addresses are usually assigned to networked devices that are consistently accessed by multiple users, such as Server PCs, or printers. If you are using your Router to share your cable or DSL Internet connection, contact your ISP to see if they have assigned your home a static IP address. You will need that address during your Router's configuration.

Subnet

For routing purposes, IP networks can be divided into logical subnets by using a subnet mask. Values below those of the mask are valid addresses on the subnet.

TCP

Transmission Control Protocol - The major transport protocol in the Internet suite of protocols provides reliable, connection-oriented full-duplex streams.

TFTP

Trivial File Transfer Protocol - A simple file transfer protocol (a simplified version of FTP) that is often used to boot diskless workstations and other network devices such as routers over a network (typically a LAN).

Telnet

The virtual terminal protocol in the Internet suite of protocols - Allows users of one host to log into a remote host and act as normal terminal users of that host.

Transparent bridging

So named because the intelligence necessary to make relaying decisions exists in the bridge itself and is thus transparent to the communicating workstations. It involves frame forwarding, learning workstation addresses and ensuring no topology loops exist (in conjunction with the Spanning-Tree algorithm).

UDP

User Datagram Protocol - A connectionless transport protocol that runs on top of TCP/IP's IP. UDP, like TCP, uses IP for delivery; however, unlike TCP, UDP provides for exchange of datagrams without acknowledgments or guaranteed delivery. Best suited for small, independent requests, such as requesting a MIB value from an SNMP agent, in which first setting up a connection would take more time than sending the data.

UNI signaling

User Network Interface signaling for ATM communications.

Virtual Connection (VC)

A link that seems and behaves like a dedicated point-to-point line or a system that delivers packets in sequence, as happens on an actual point-to-point network. In reality, the data is delivered across a network via the most appropriate route. The sending and receiving devices do not have to be aware of the options and the route is chosen only when a message is sent. There is no pre-arrangement, so each virtual connection exists only for the duration of that one transmission.

WAN

Wide area network - A data communications network that spans any distance and is usually provided by a public carrier (such as a telephone company or service provider).

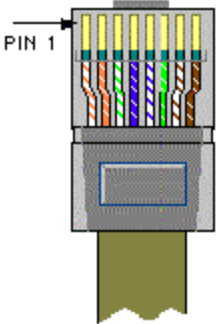
Appendix B Cabling / Connection

Network cables connect PCs in an Ethernet network Category 5, called "Cat5" for short is commonly used type of network cable today.

Cat 5 cables are tipped with RJ-45 connectors, which fit into RJ-45 port.

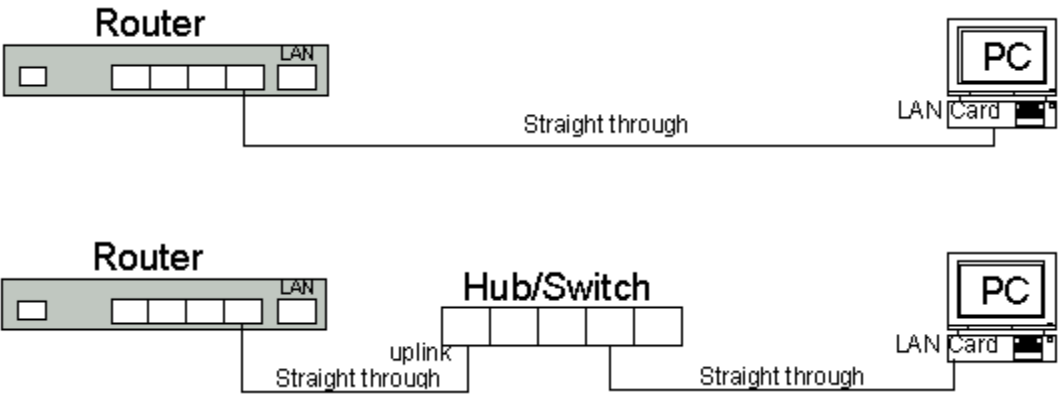
Straight-through vs. Crossover Cables:

Straight-through	
Wire	Becomes
1	1
2	2
3	3
6	6



Straight-through	
Wire	Becomes
1	1
2	2
3	3
6	6

LAN Connection:



To check LEDs light up when you finish connecting two pieces of hardware.